

FIG. 1A

2006020" T506500T

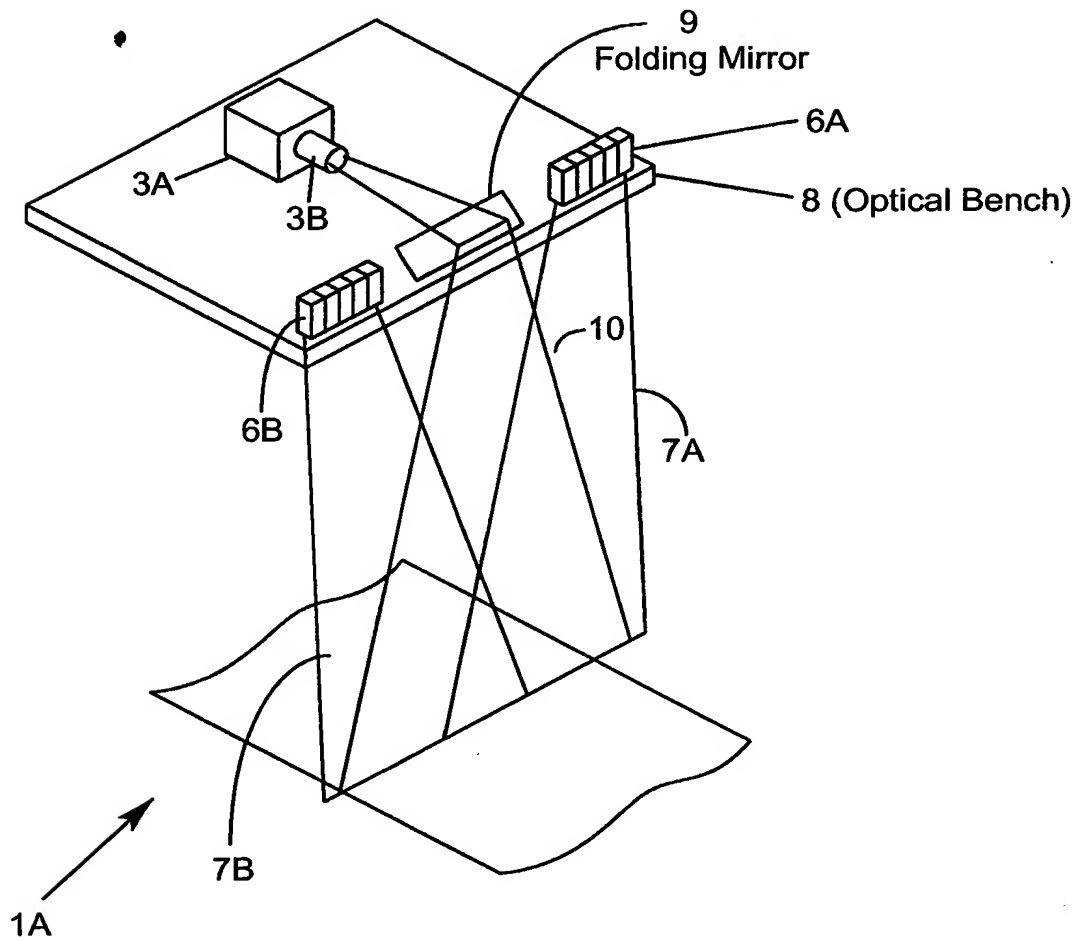


FIG. 1B1

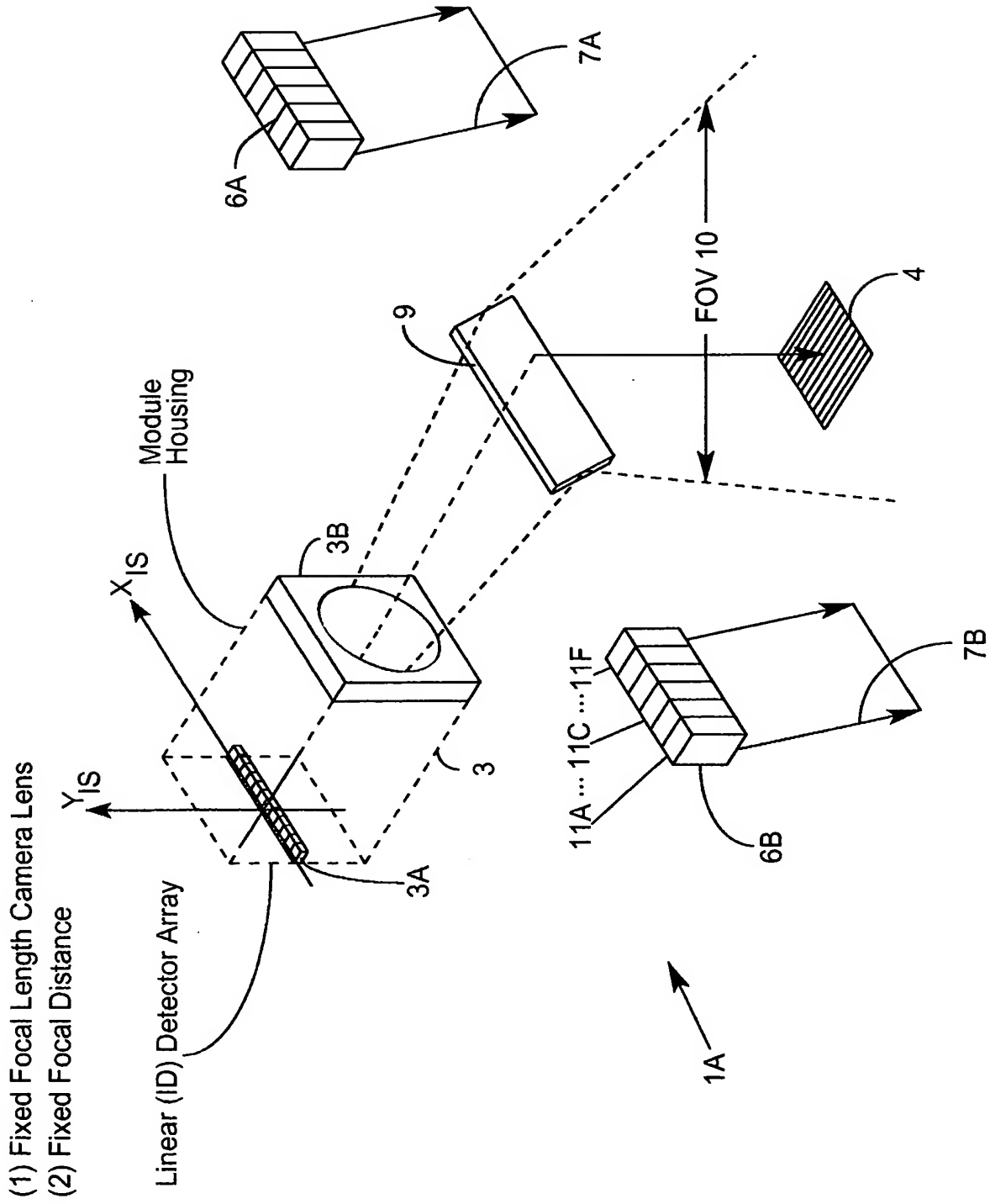


FIG. 1B2

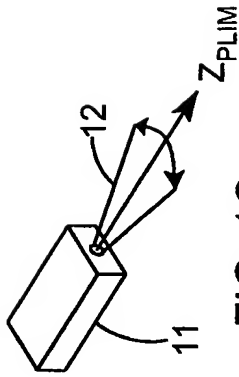


FIG. 1C

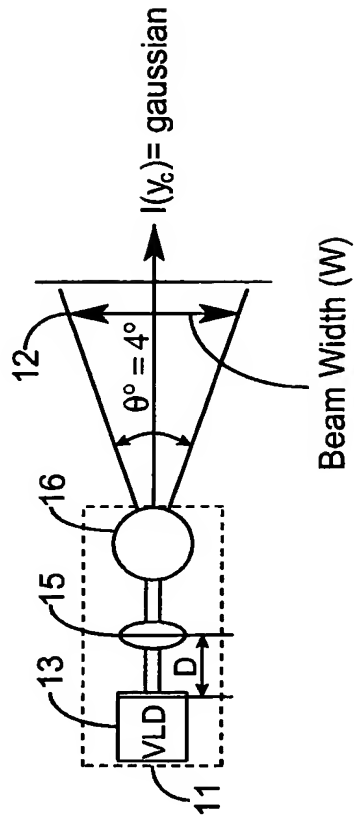


FIG. 1E1

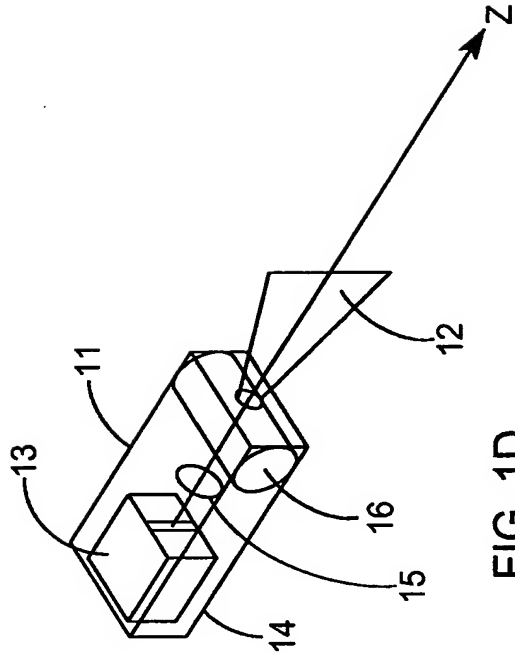


FIG. 1D

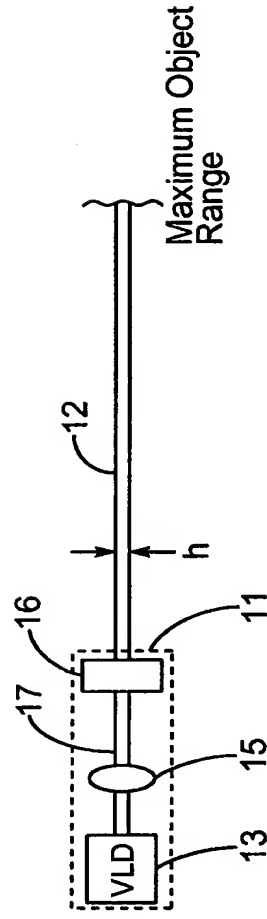


FIG. 1E2

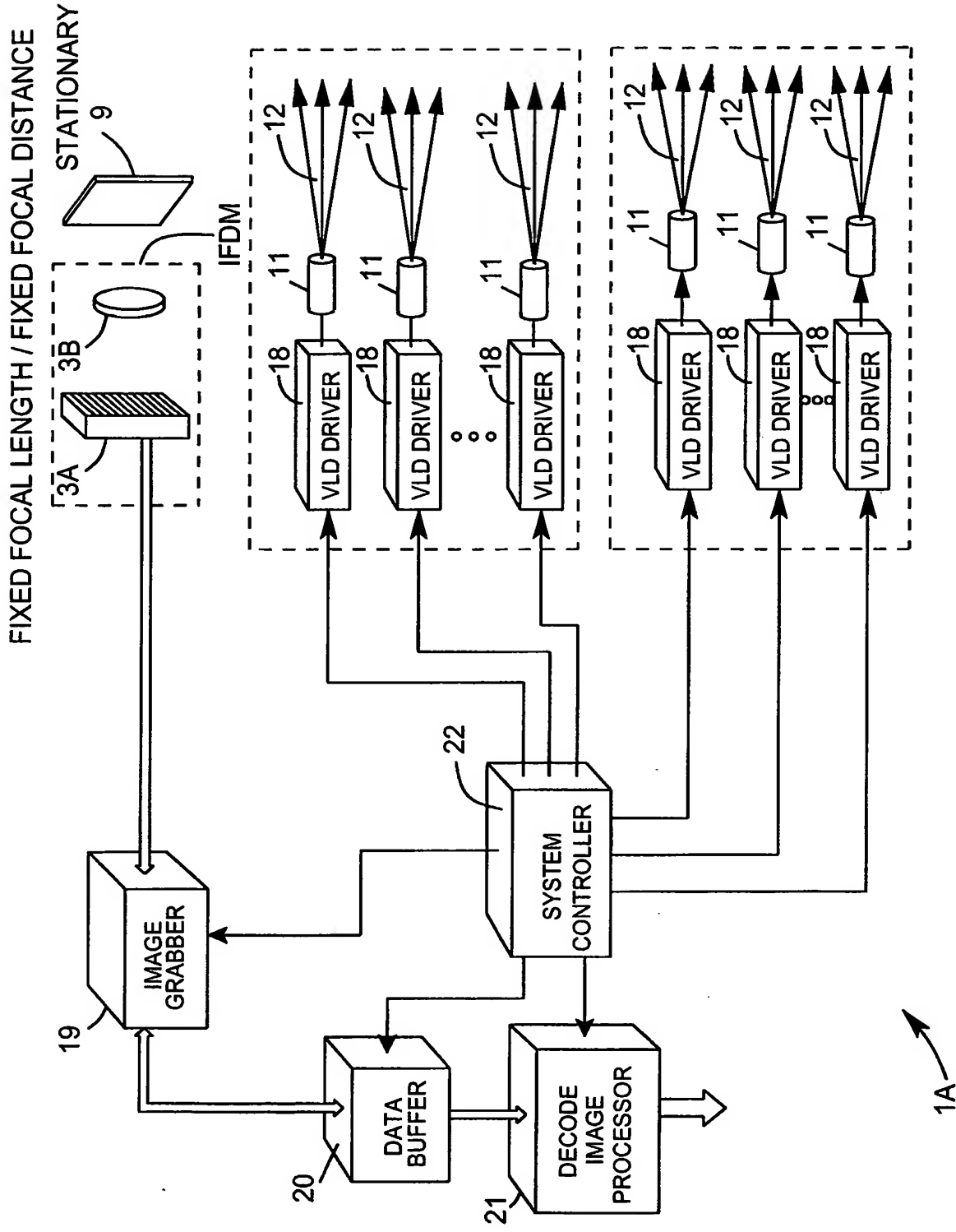


FIG. 1F

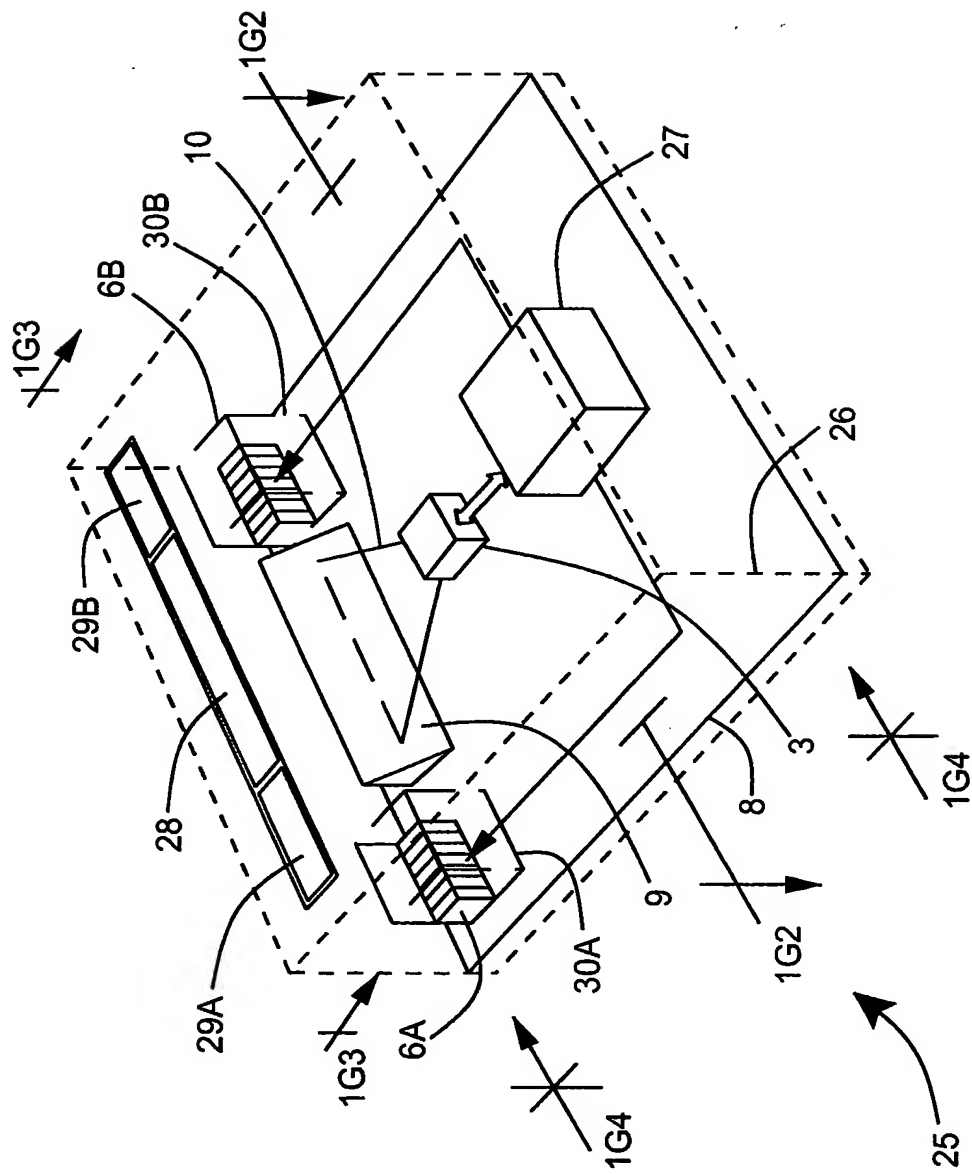


FIG. 1G1

206020" T5065DOT

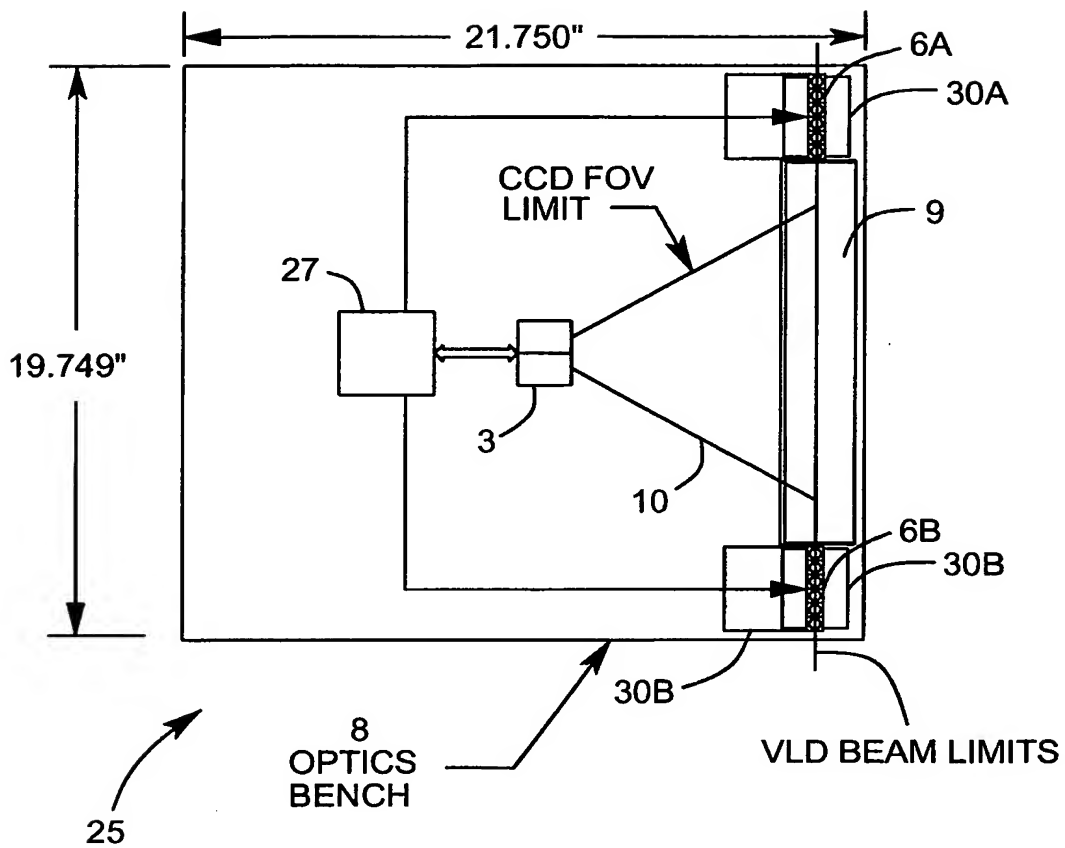


FIG. 1G2

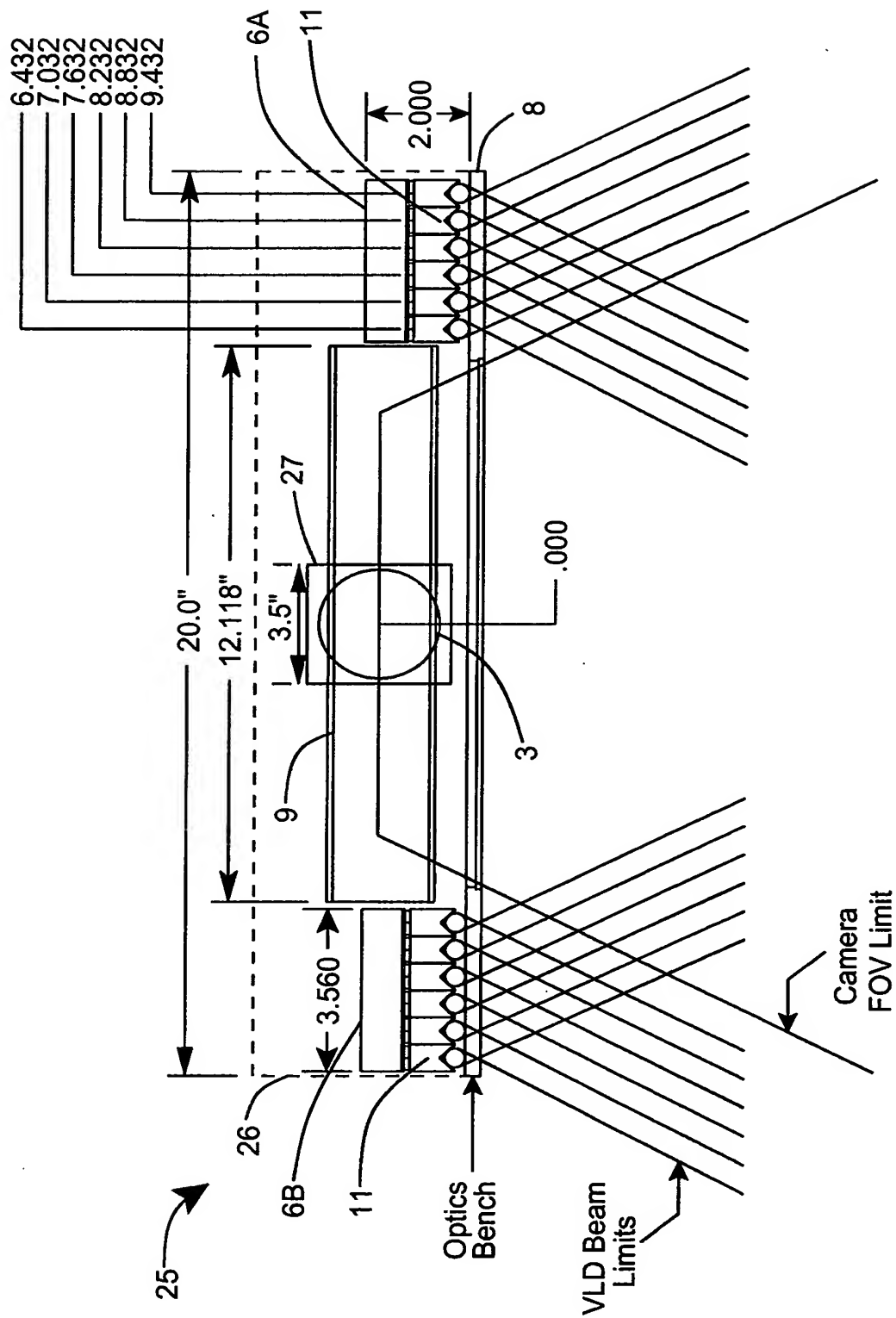


FIG. 1G3

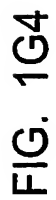


FIG. 1G4

206020" TS065007

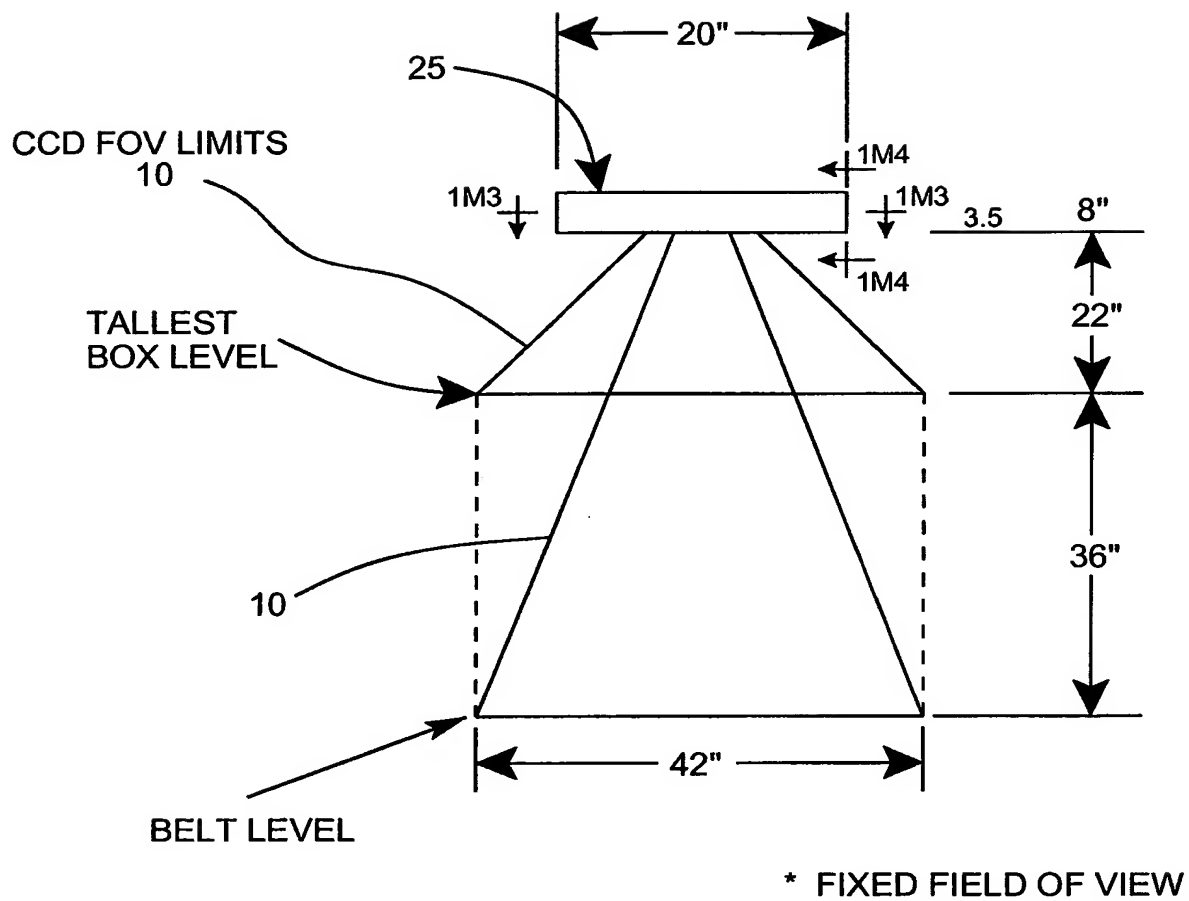


FIG. 1G5

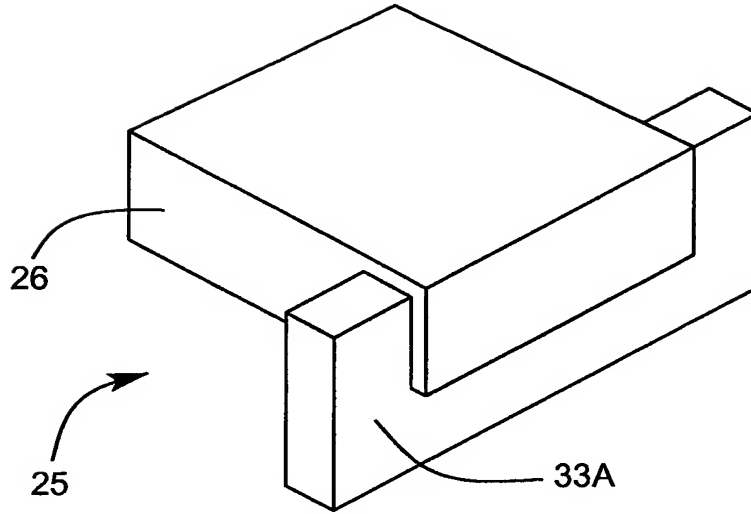
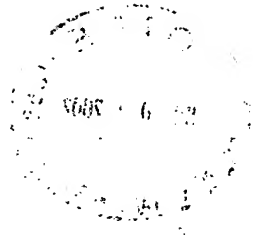


FIG. 1G6

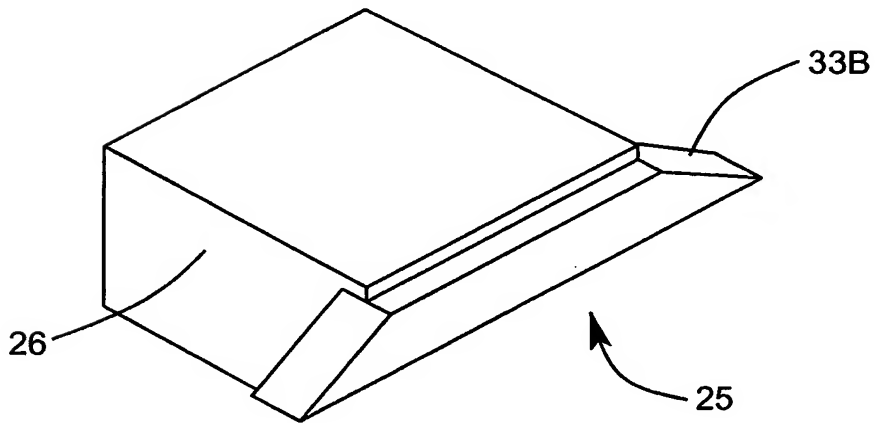


FIG. 1G7

10059051.070902

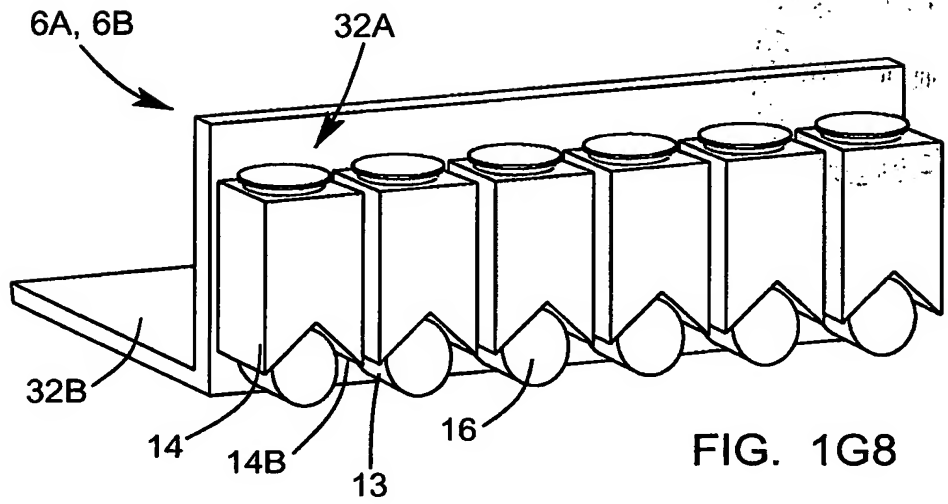


FIG. 1G8

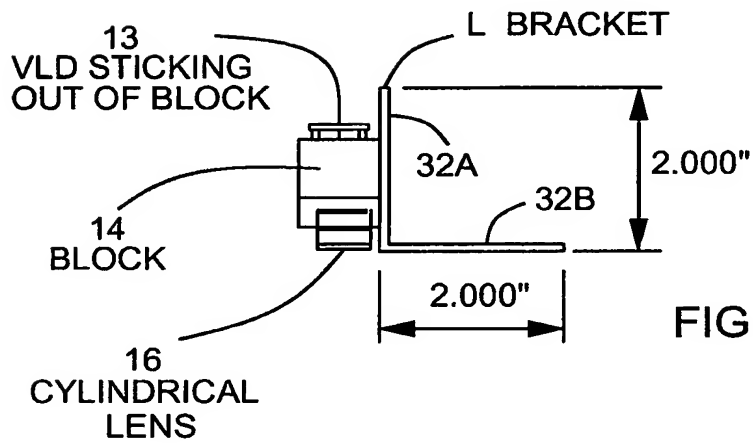


FIG. 1G9

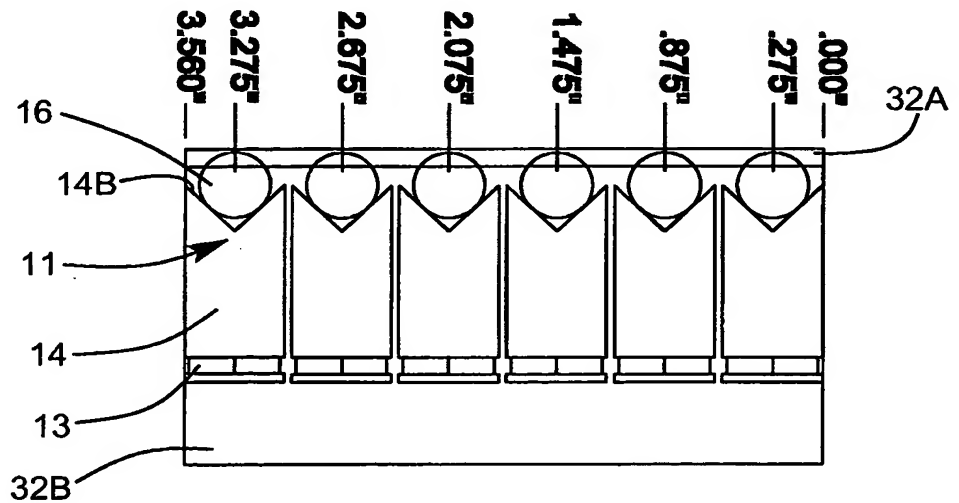


FIG. 1G10

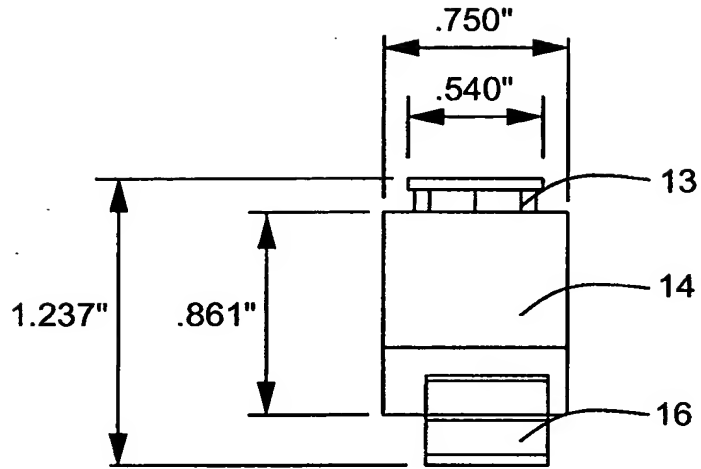


FIG. 1G11

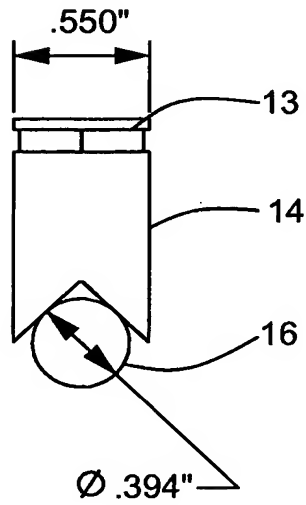


FIG. 1G12

206020 F5065007

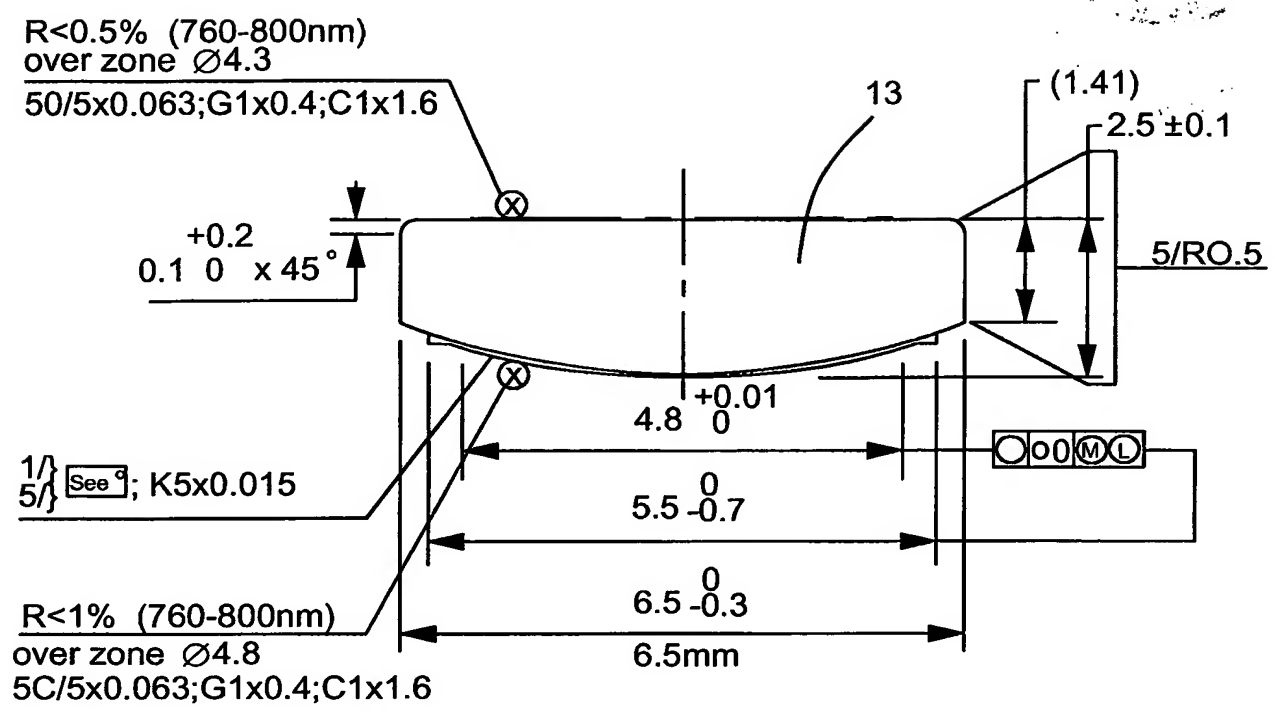


FIG. 1H1

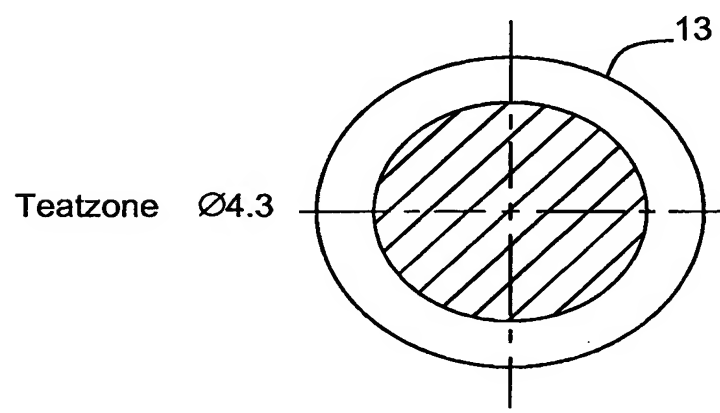


FIG. 1H2

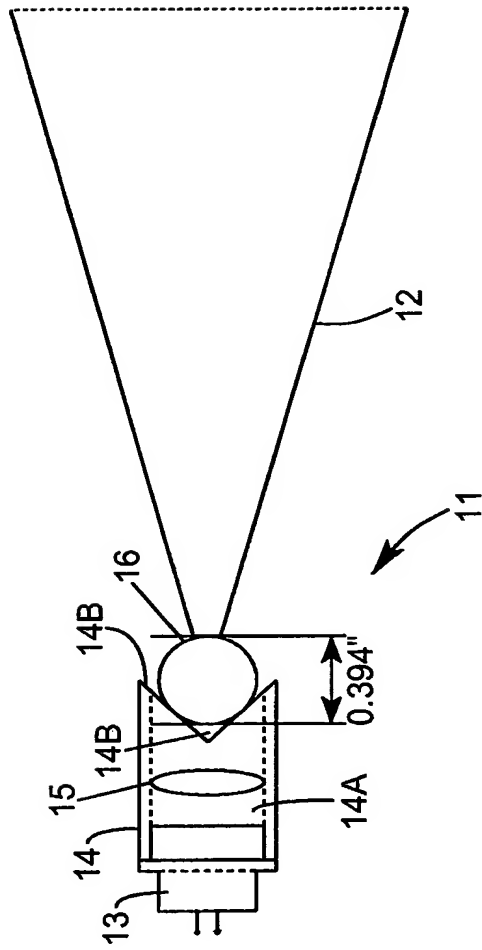


FIG. 111

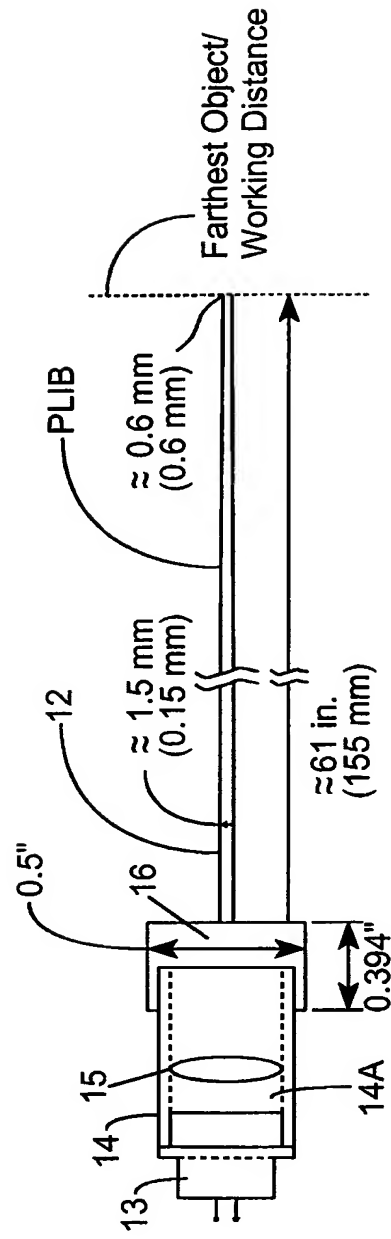


FIG. 112

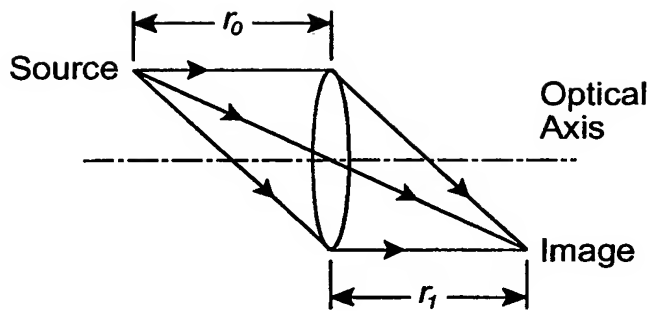


FIG. 1J1

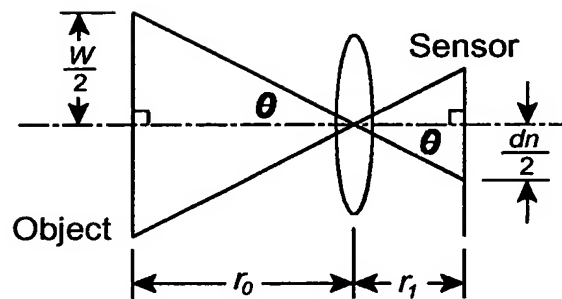


FIG. 1J2

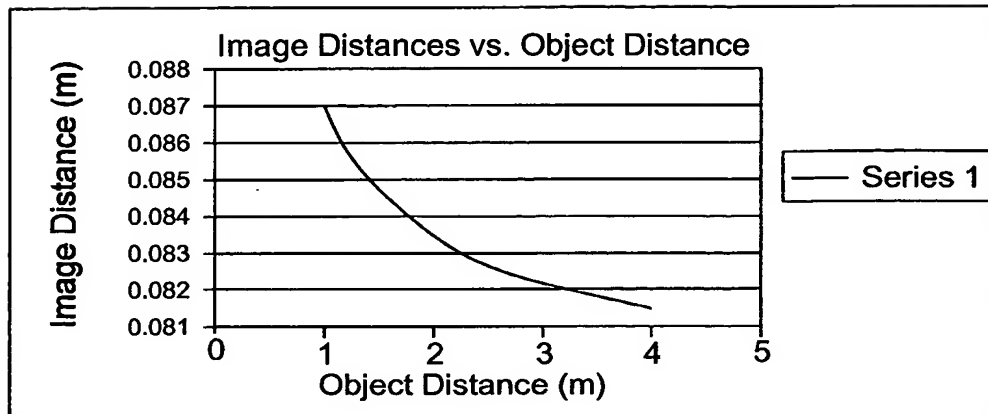


FIG. 1J3

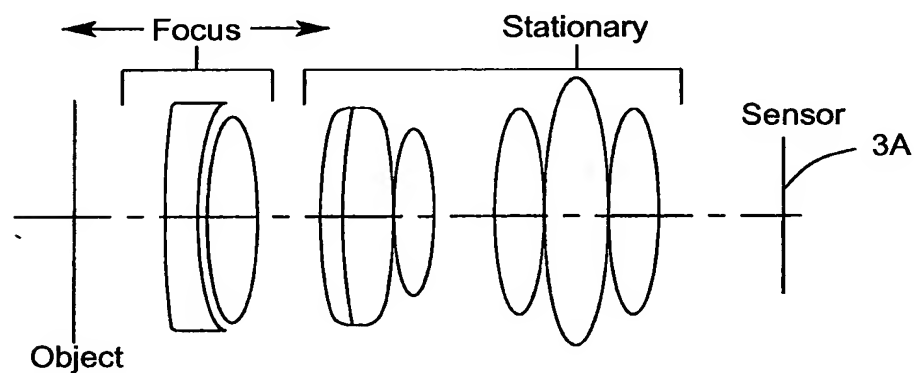


FIG. 1J4

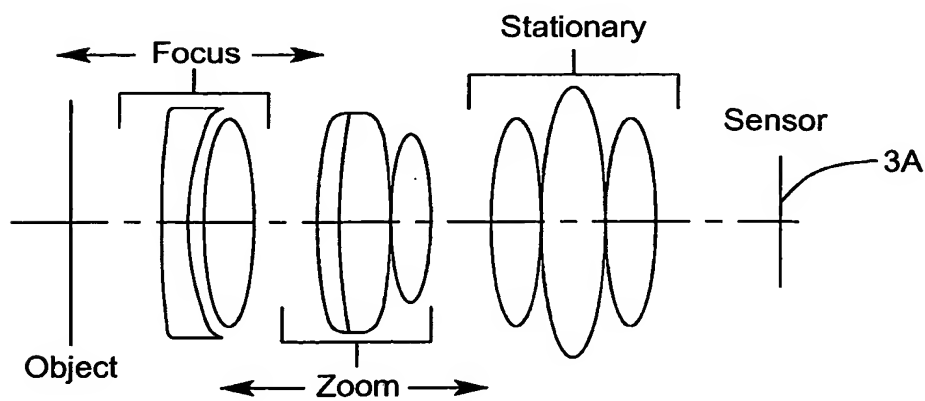


FIG. 1J5

206070" T506500T

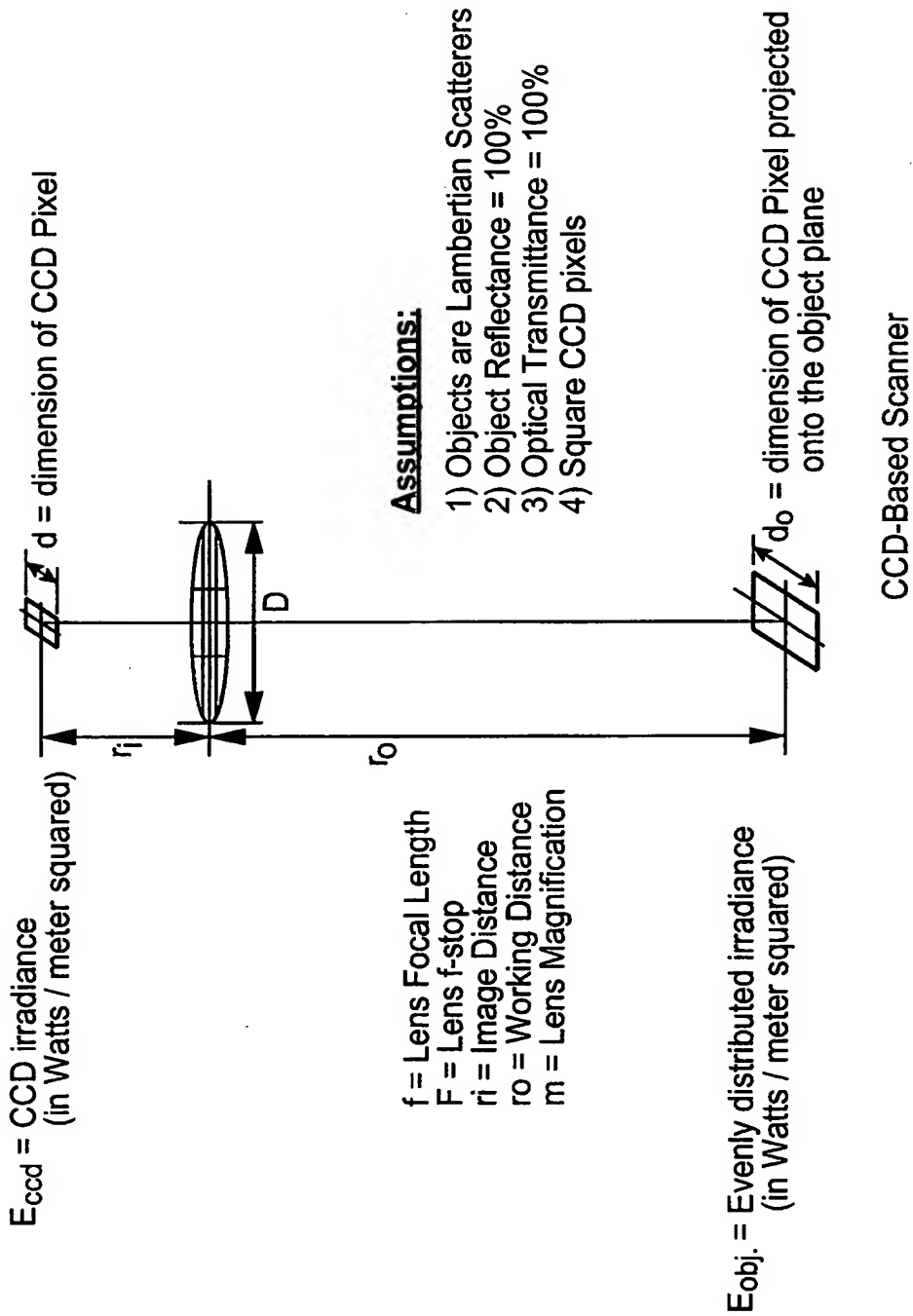


FIG. 1J6

10059051.070902

Fixed Focal Length
Lens Cases

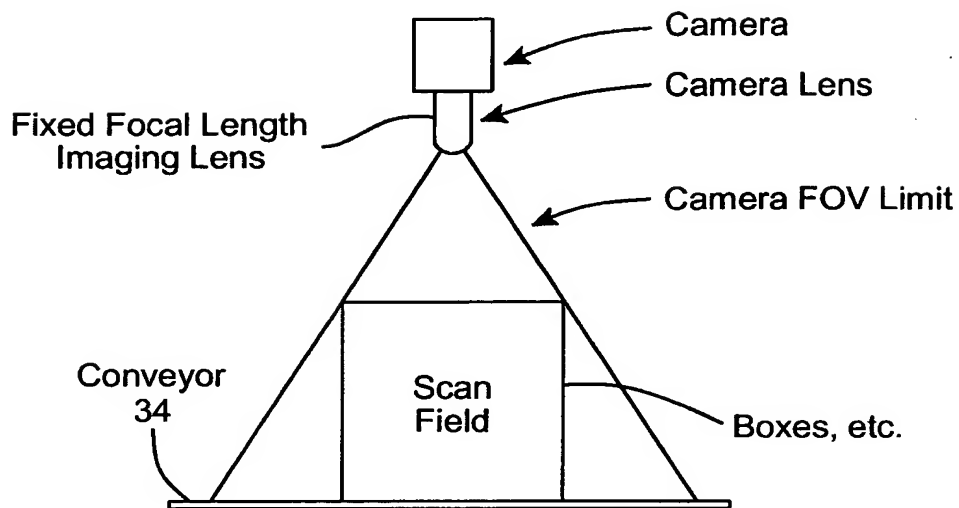


FIG. 1K1

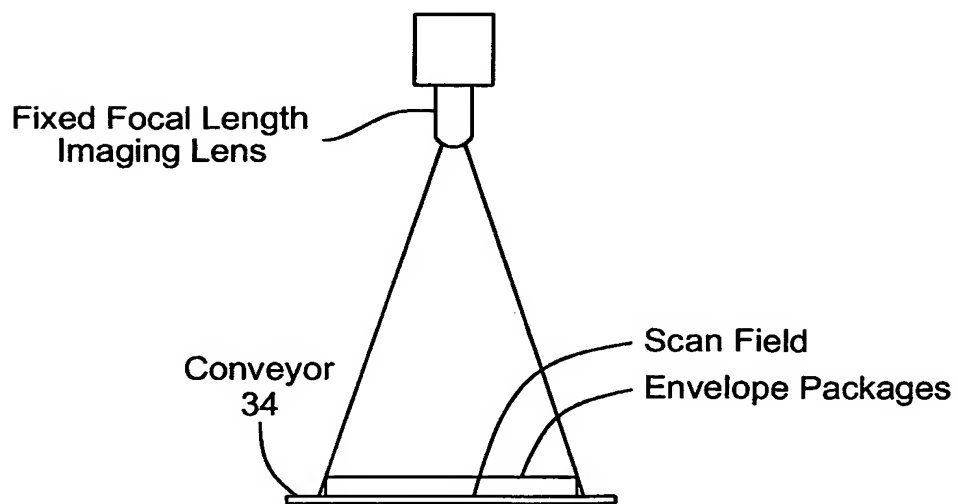


FIG. 1K2

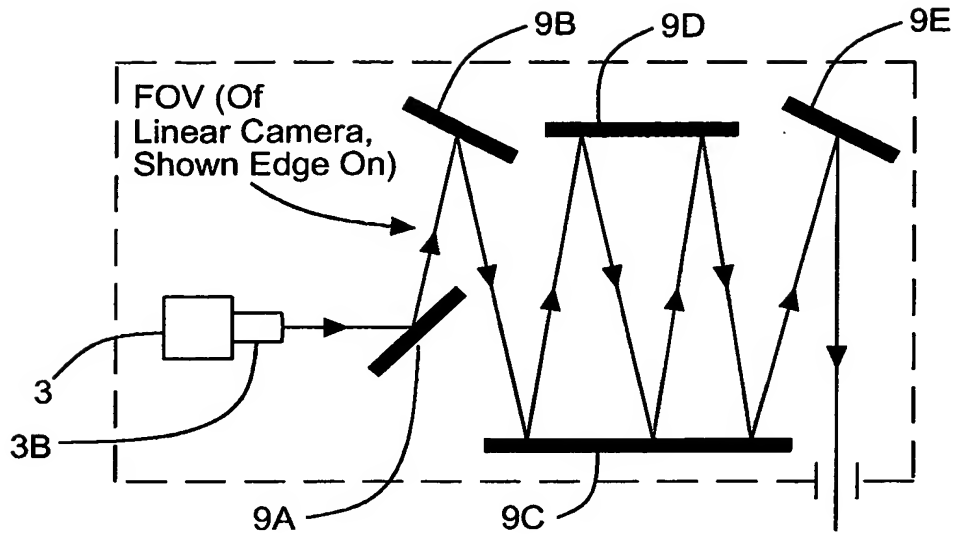


FIG. 1L1

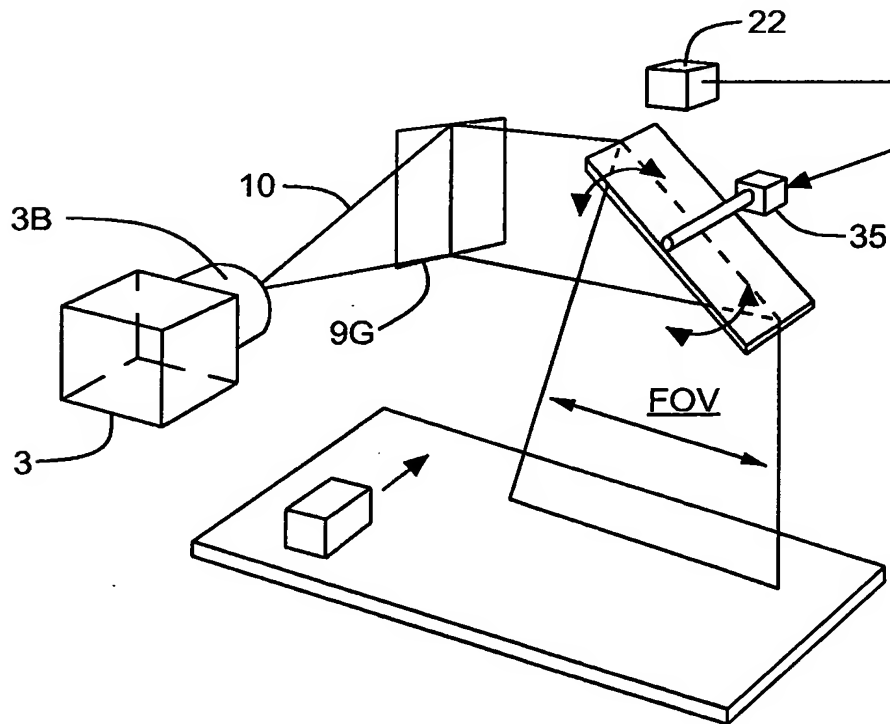
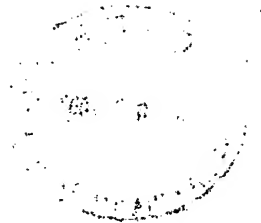


FIG. 1L2

206020" T506500T



Pixel Power Density vs. Object Distance (General Example)

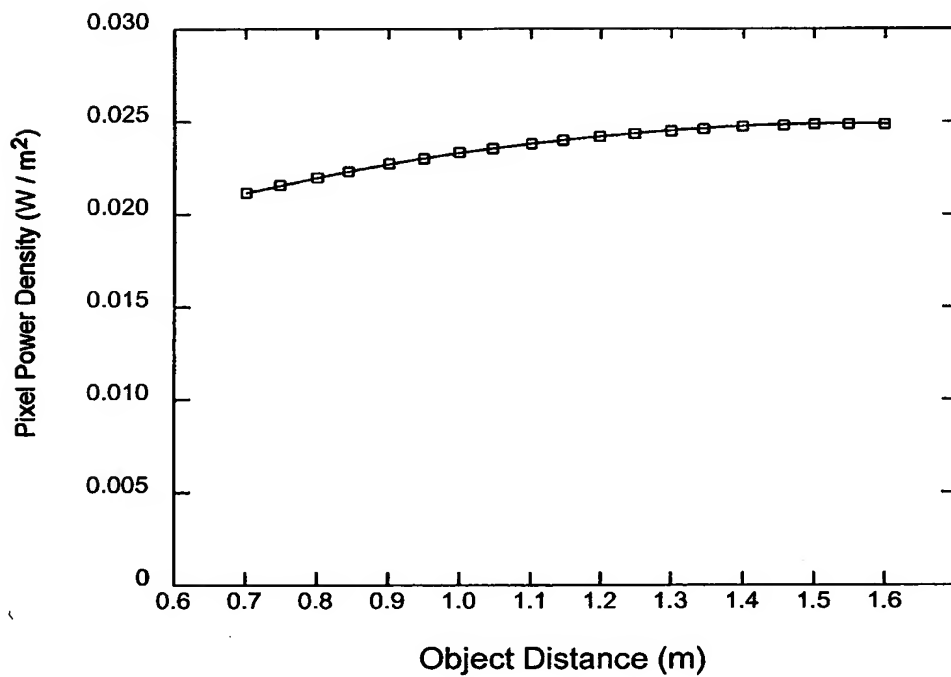


FIG. 1M1

Near And Far Object Distance Laser Power
Distribution Data And Curve Fit

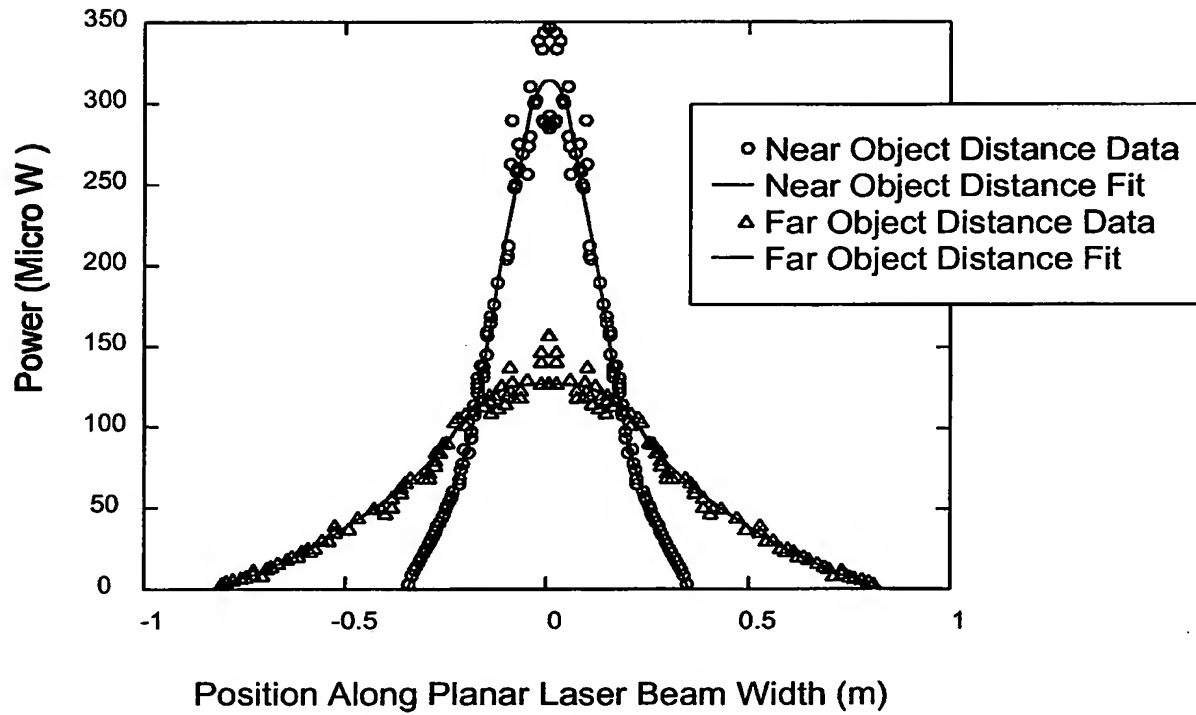


FIG. 1M2

Planar Laser Beam Width vs. Object Distance

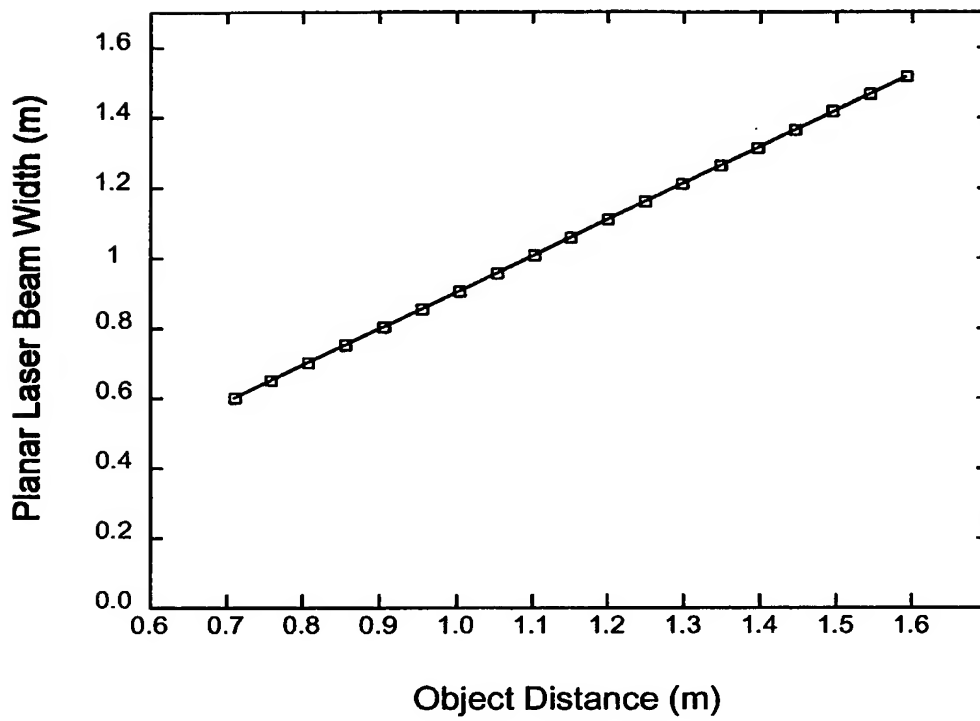


FIG. 1M3

Planar Laser Beam Height vs.
Object Distance (Far Object Distance Focus)

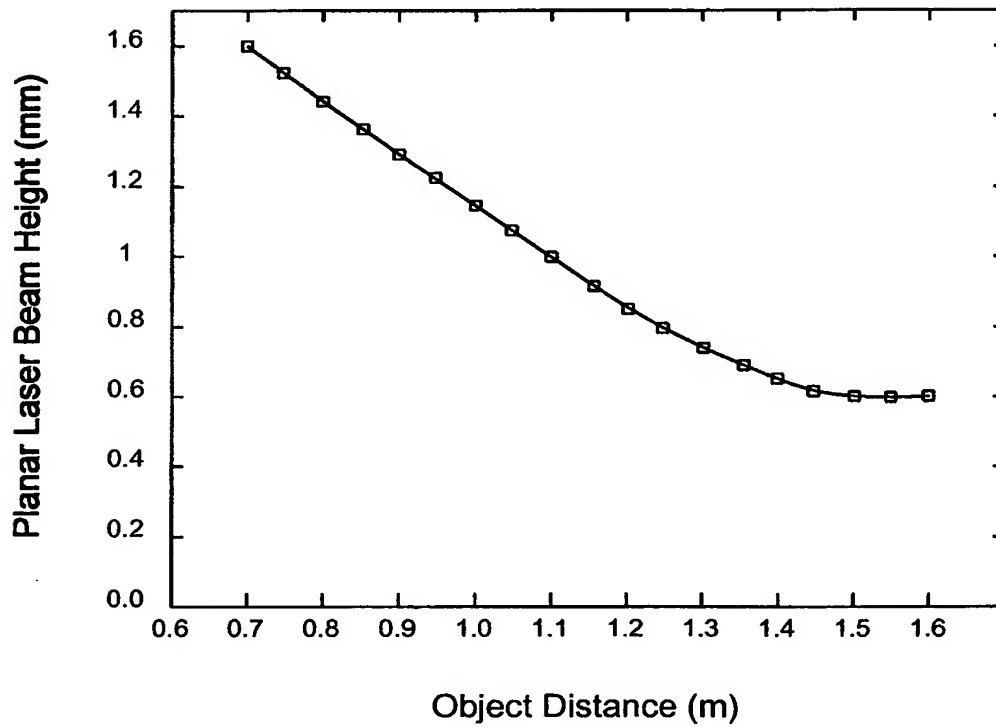


FIG. 1M4

206020" T5065001



Center Line Power Density vs. Object Distance (Far Object Distance Focus)

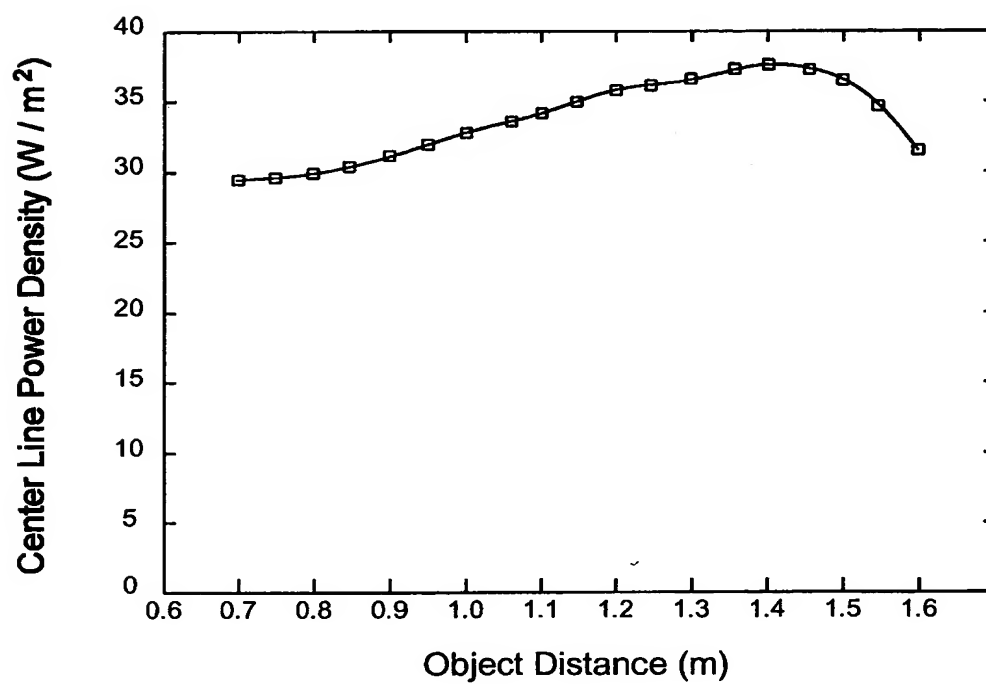


FIG. 1N

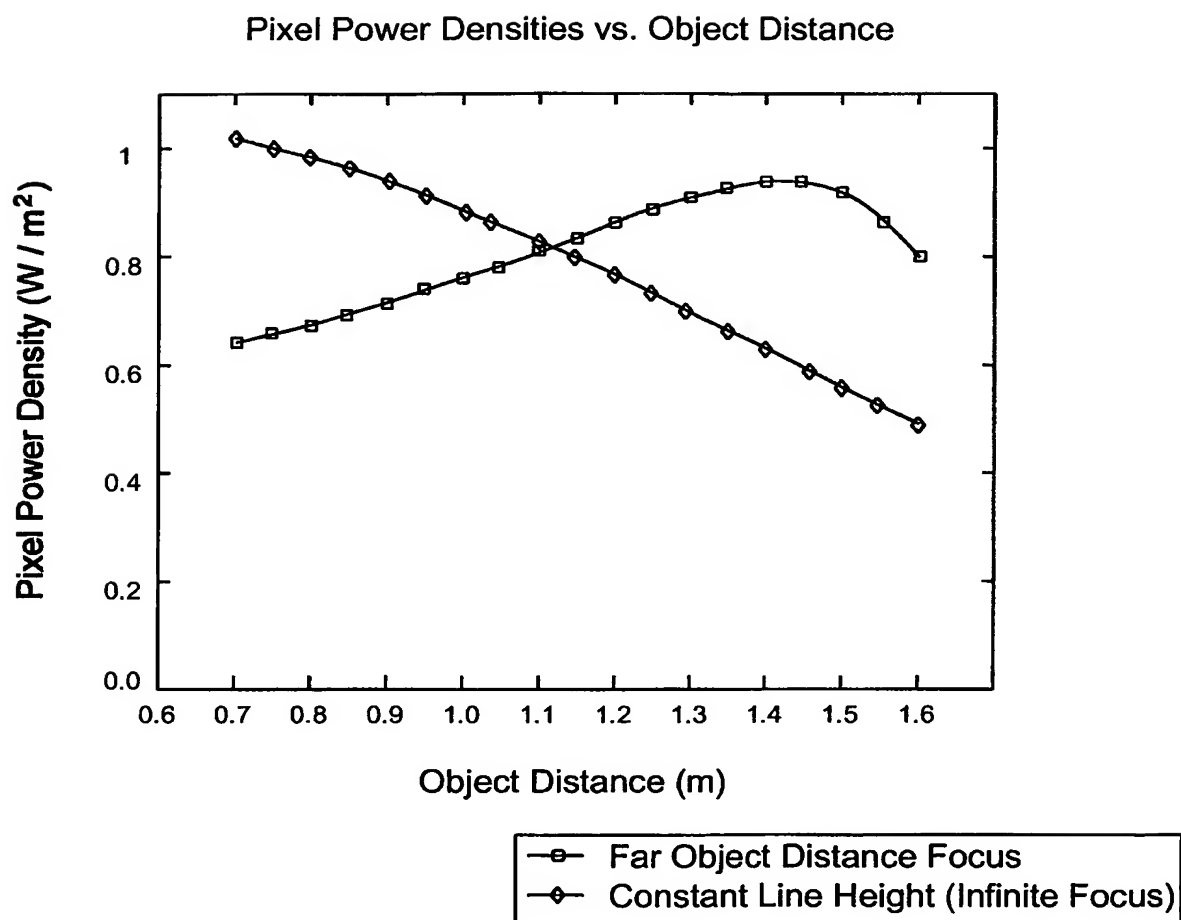


FIG. 10

206020" T506500T

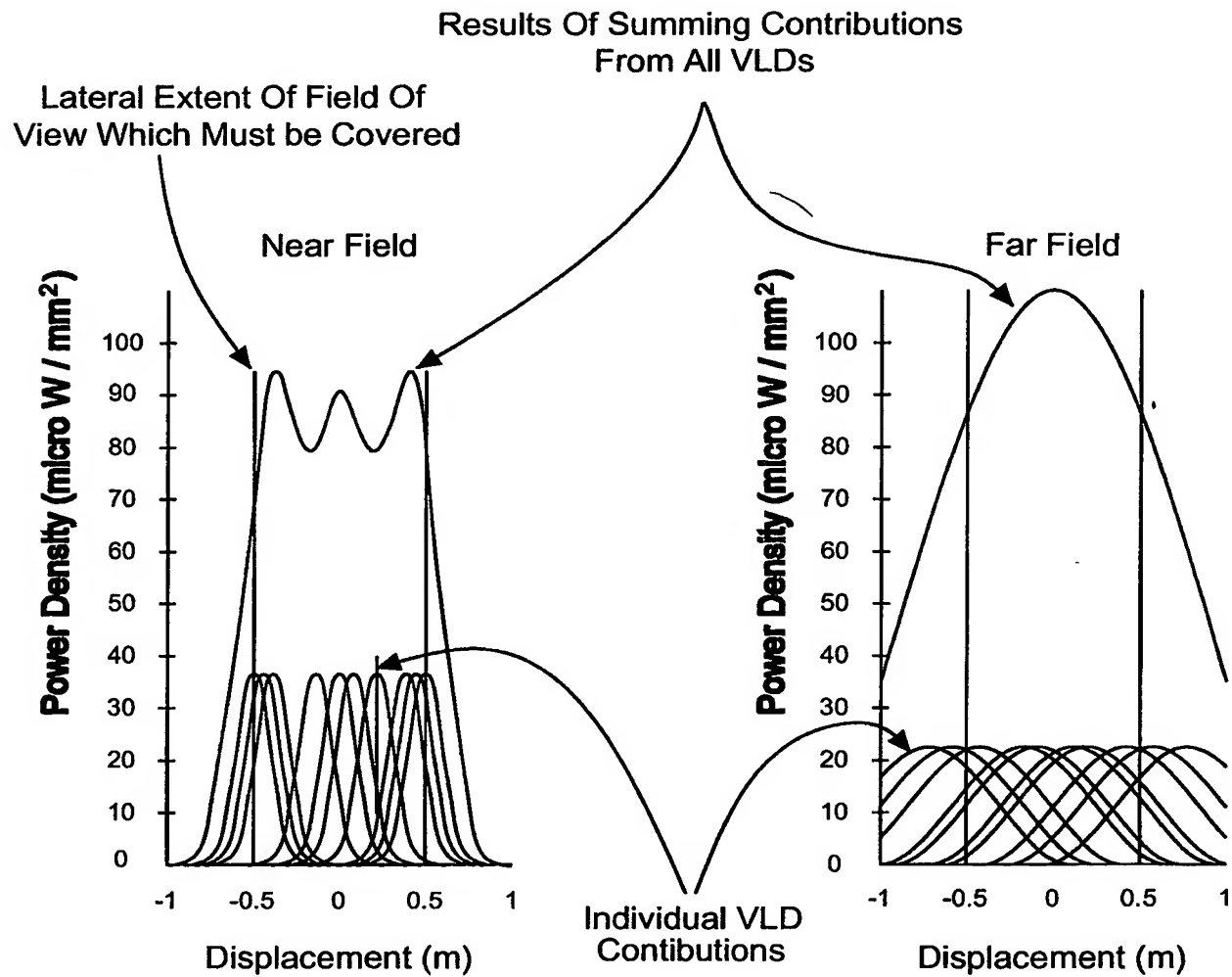
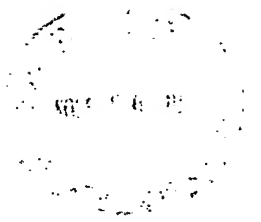


FIG. 1P1

FIG. 1P2

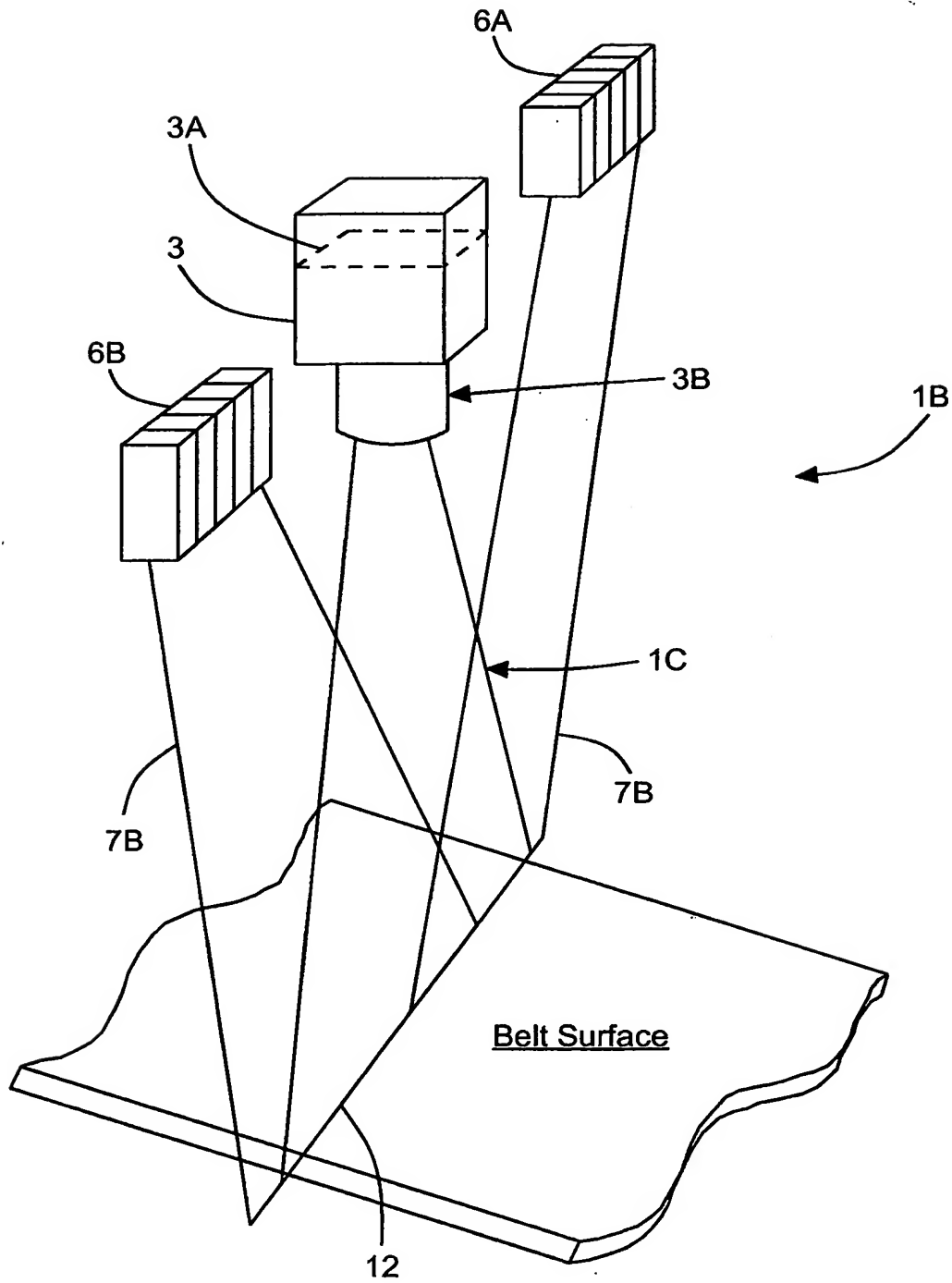


FIG. 1Q1

FIXED FOCAL LENGTH / FIXED FOCAL DISTANCE

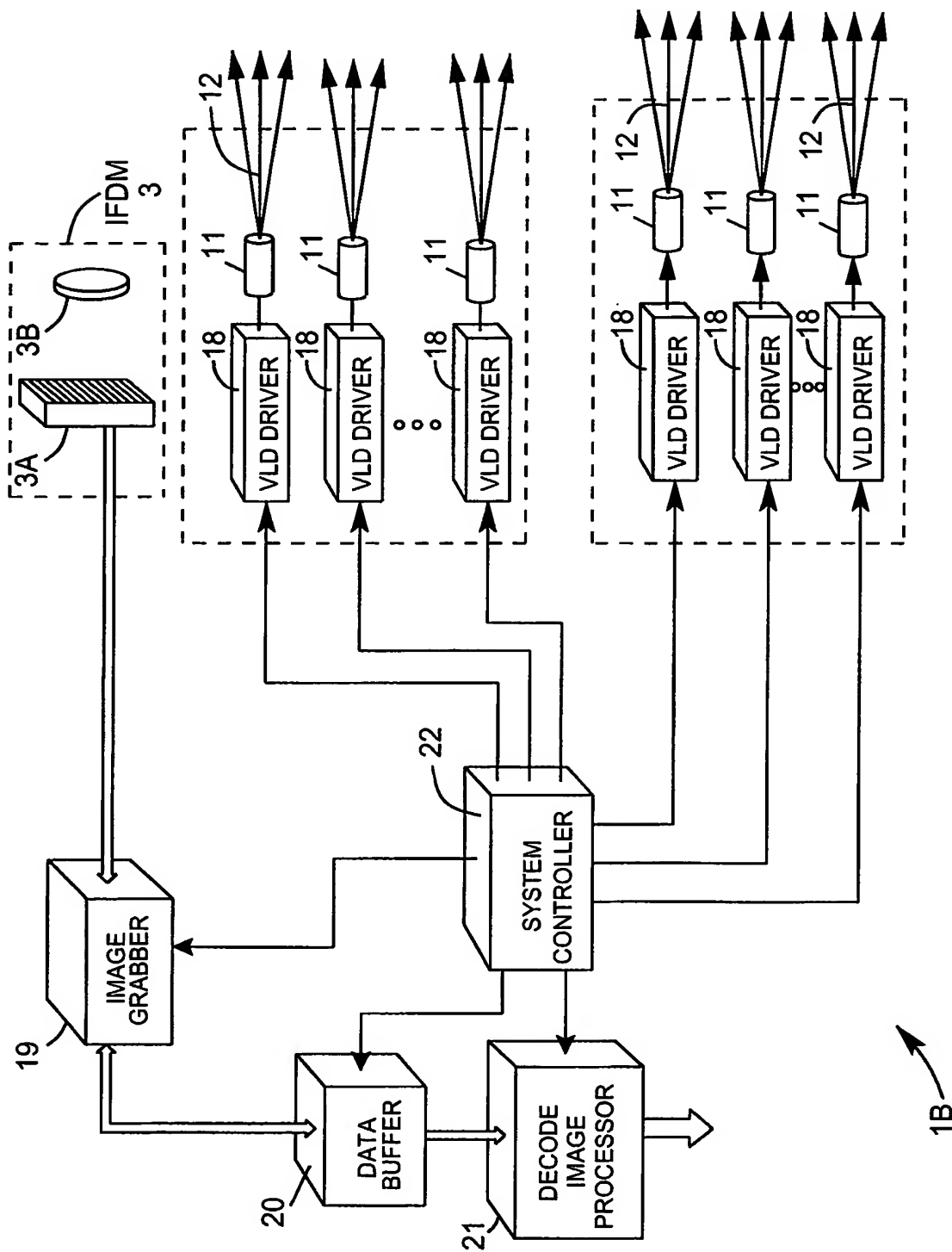


FIG. 1Q2

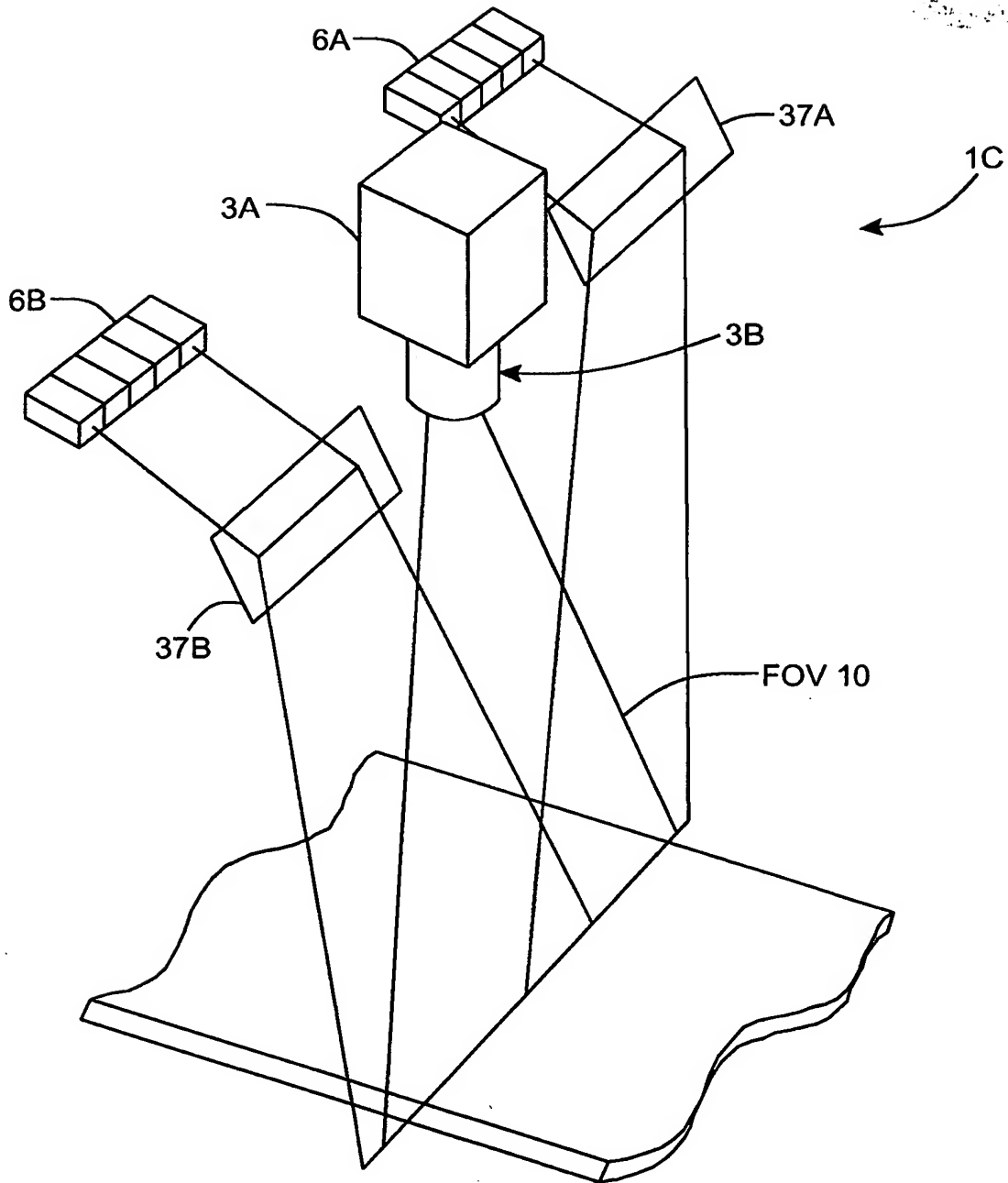


FIG. 1R1

FIXED FOCAL LENGTH / FIXED FOCAL DISTANCE

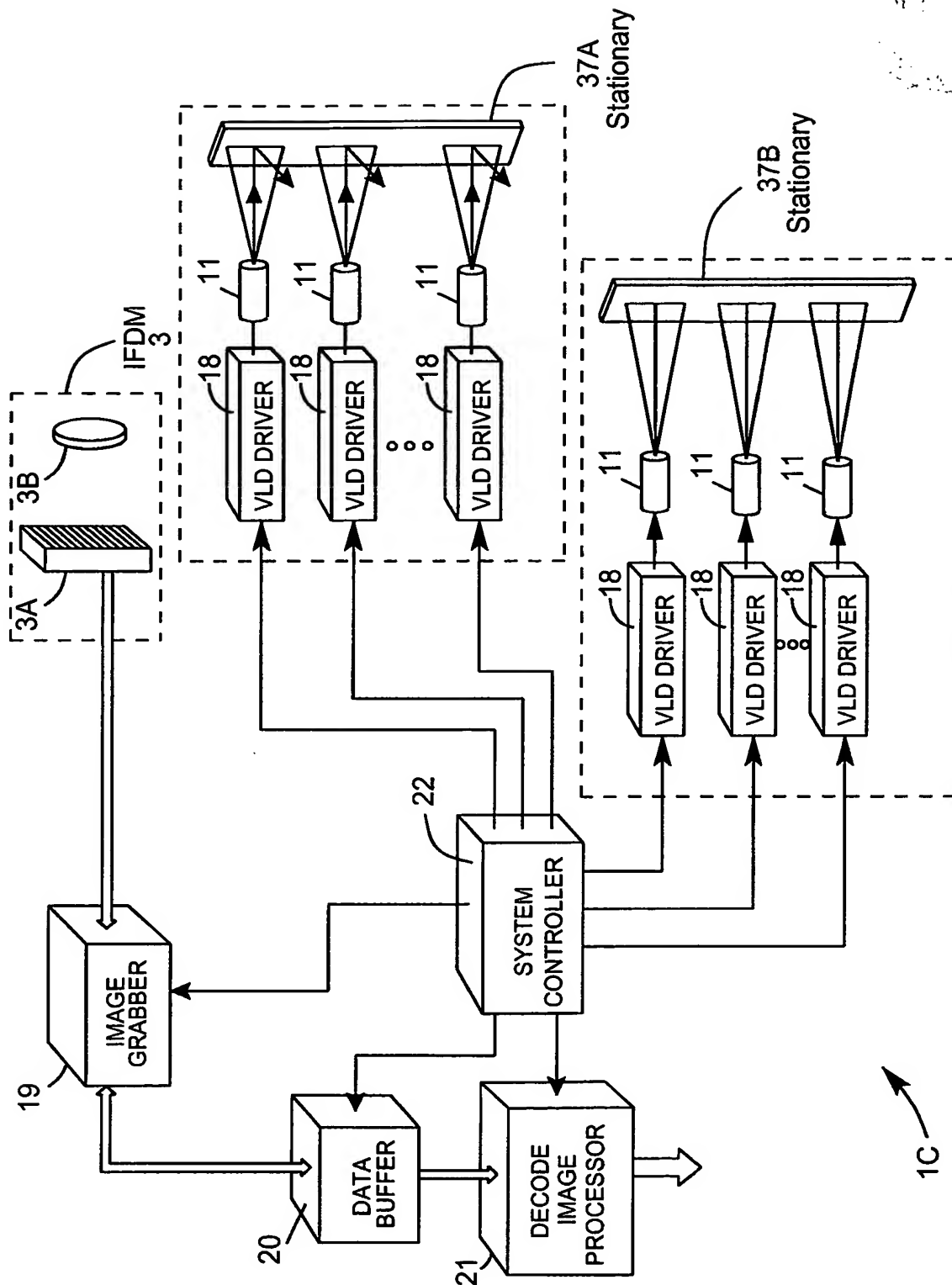


FIG. 1R2

206020-1506500T

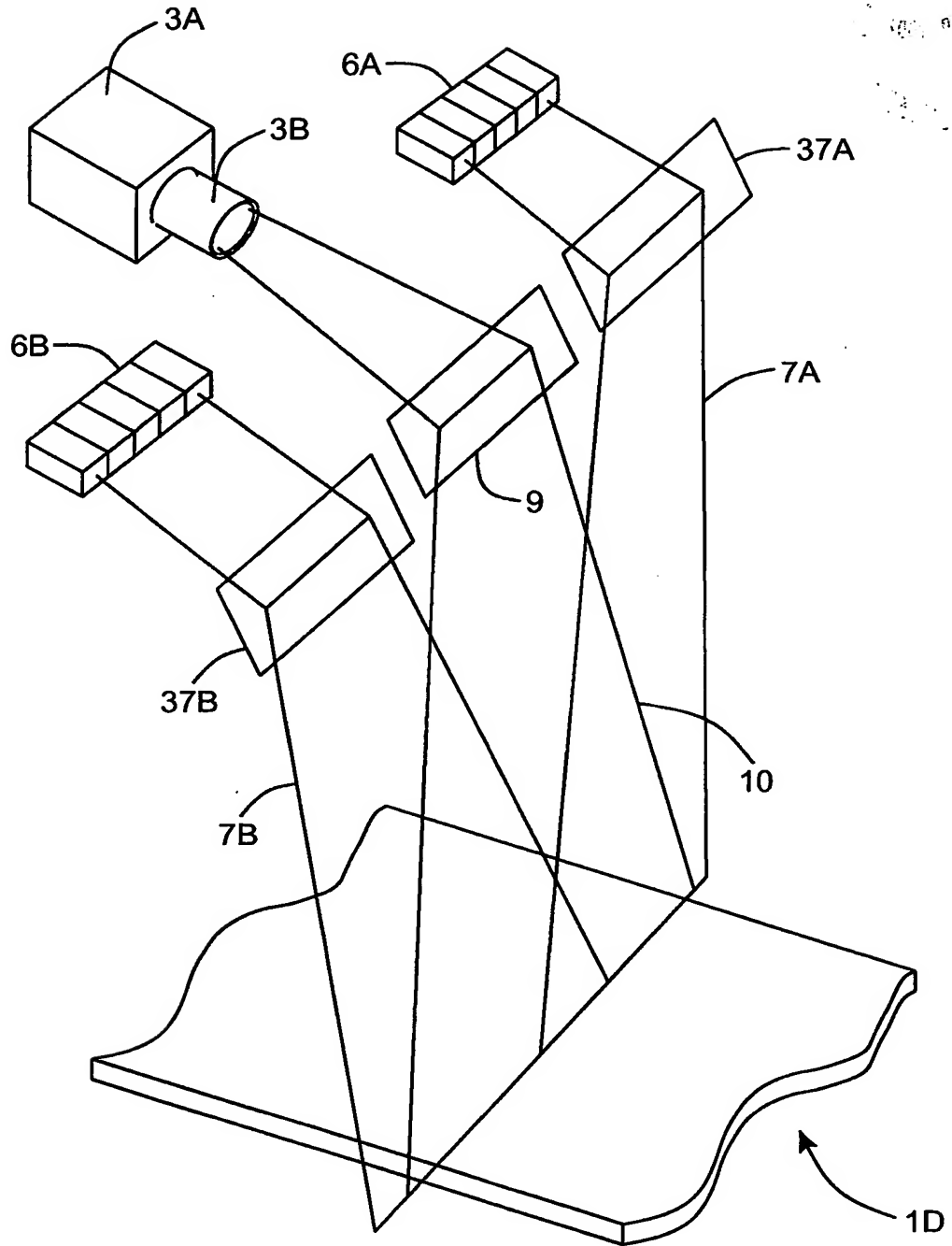


FIG. 1S1

FIXED FOCAL LENGTH / FIXED FOCAL DISTANCE

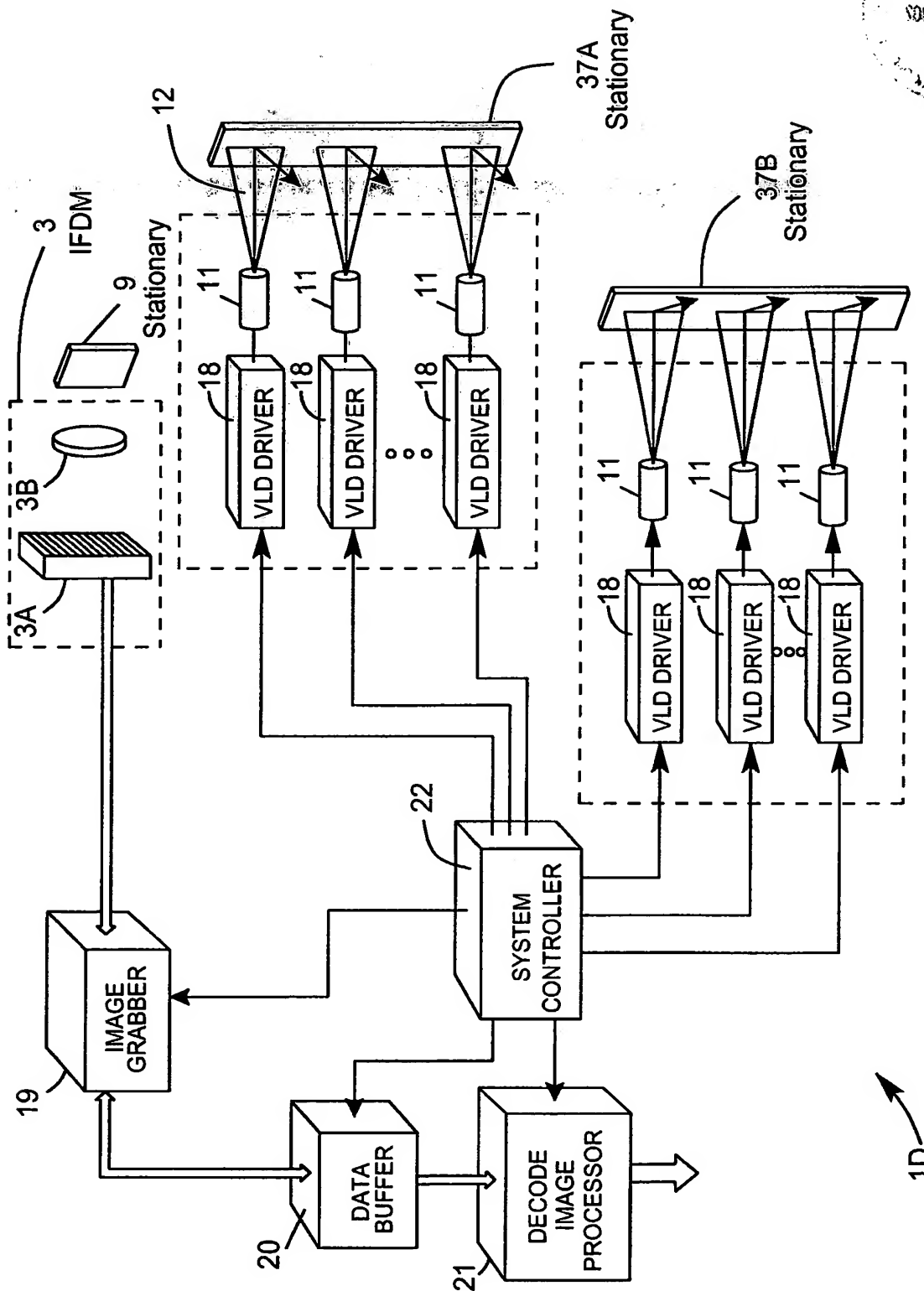


FIG. 1S2

2005051-070902

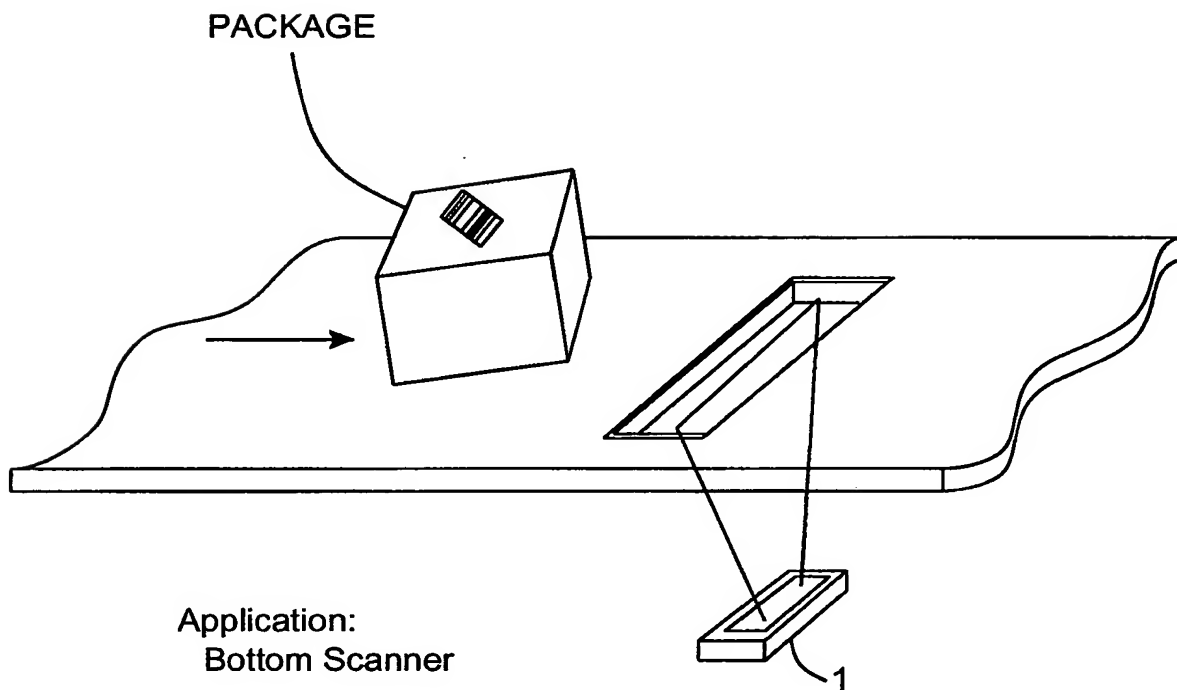
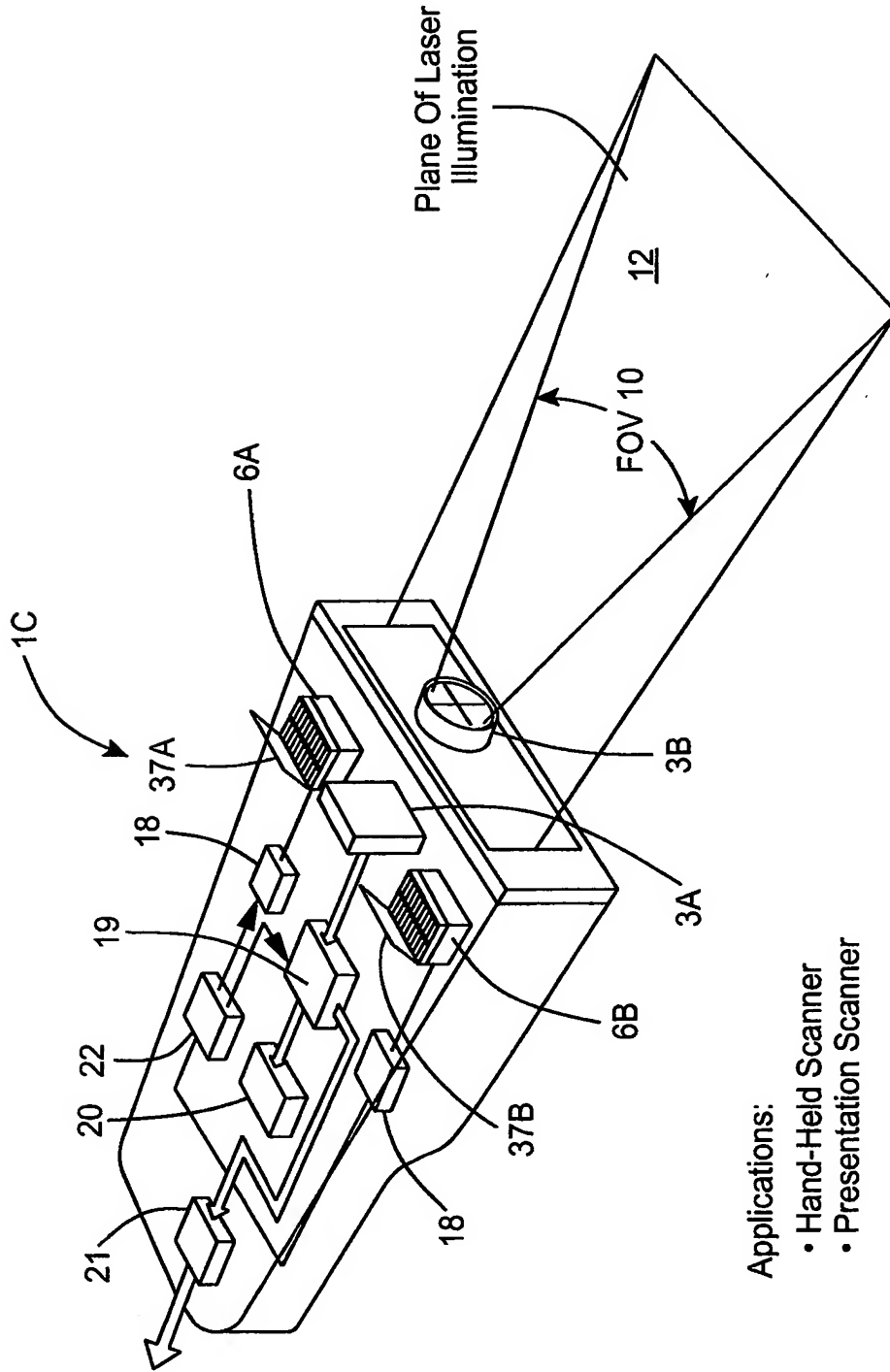


FIG. 1T



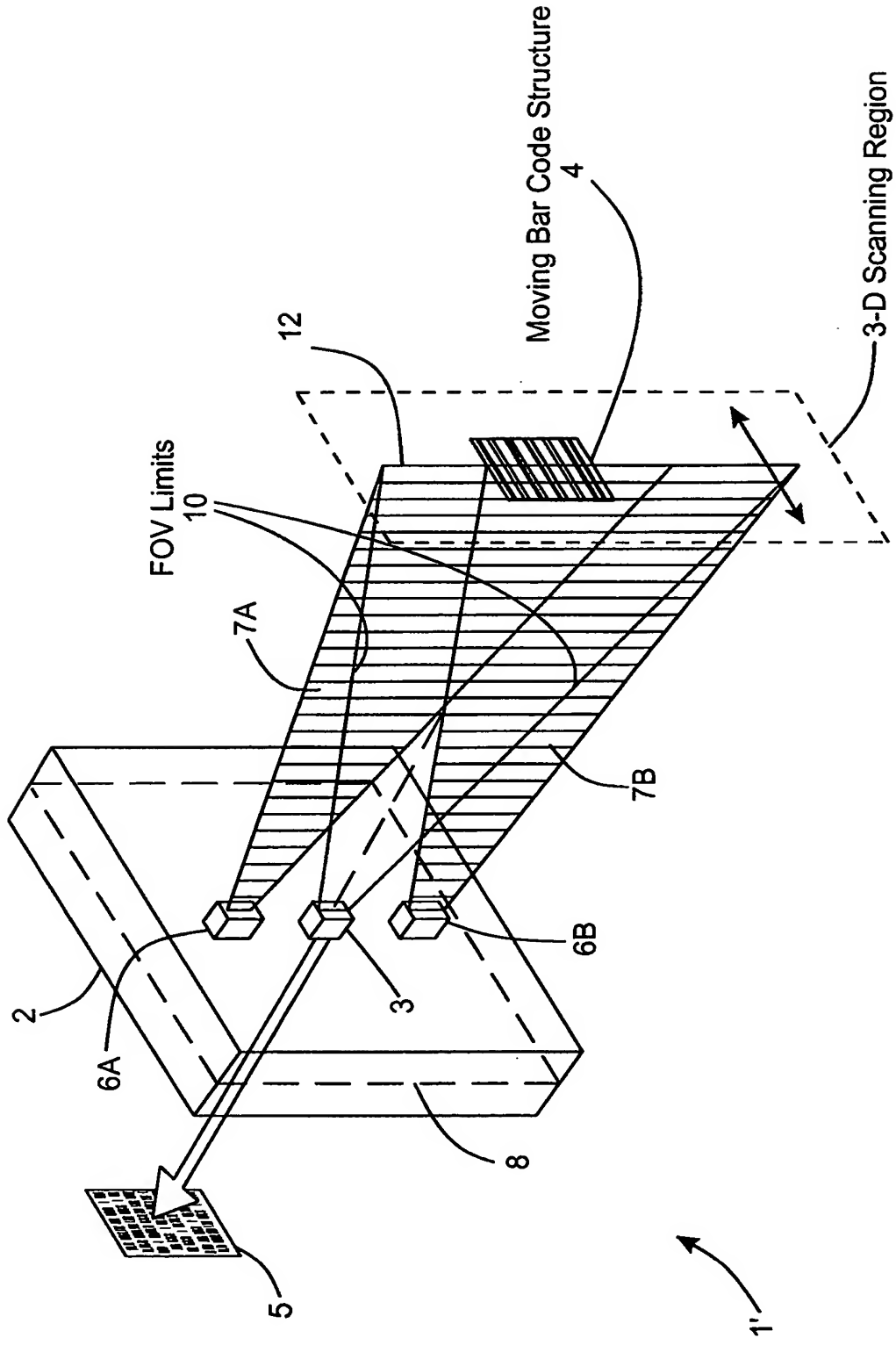


FIG. 1V1

206020" T5065001

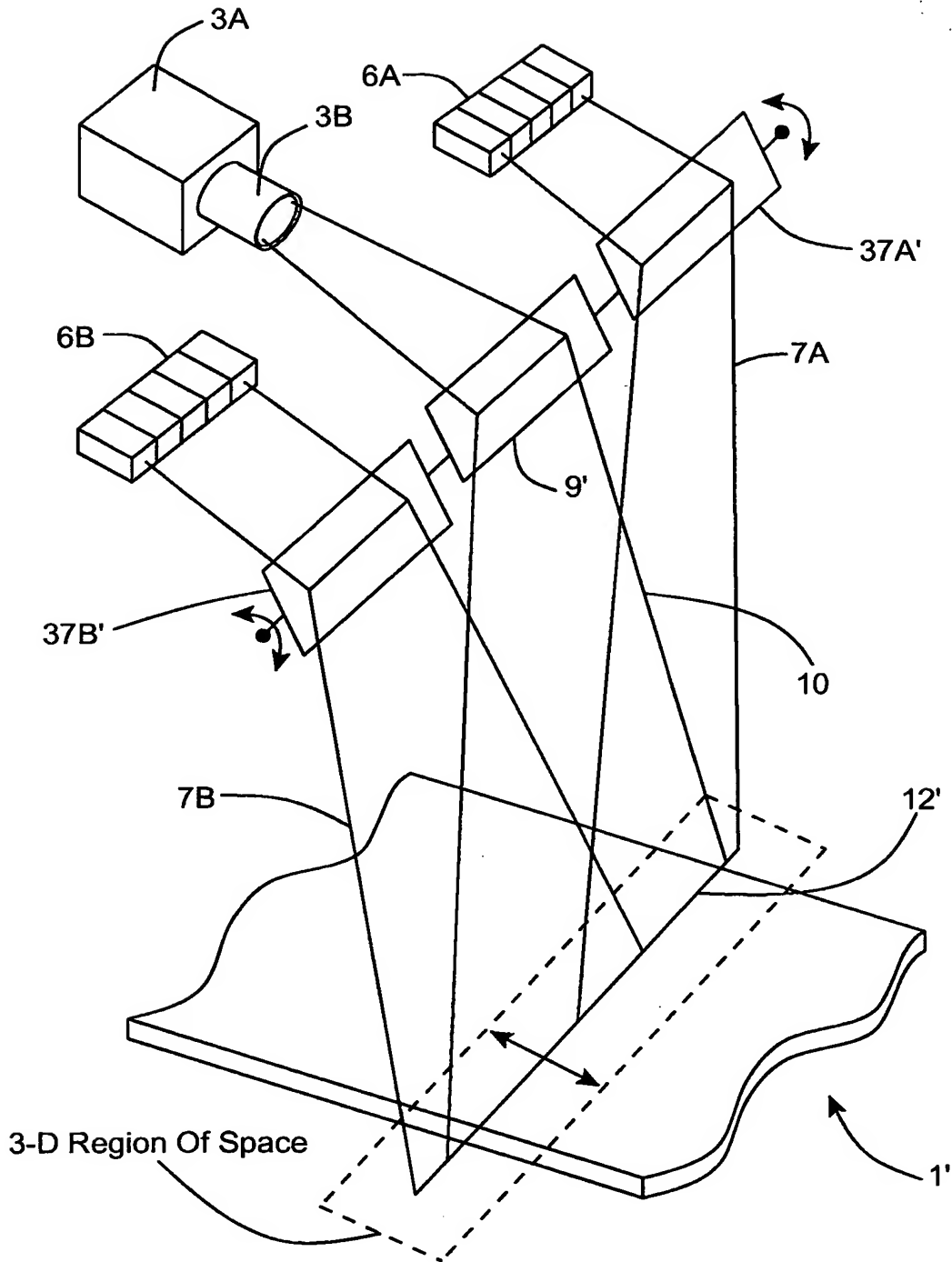


FIG. 1V2

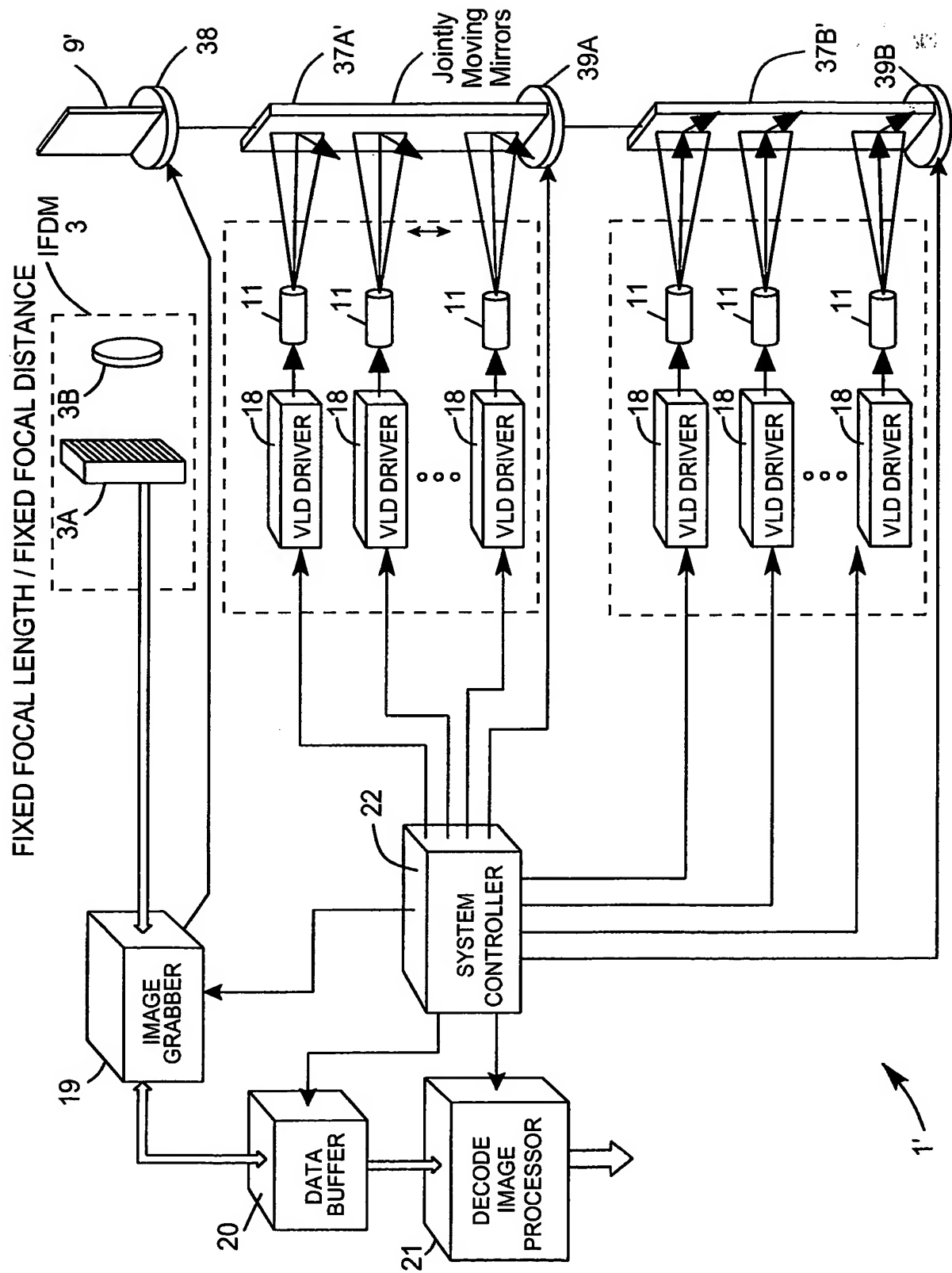
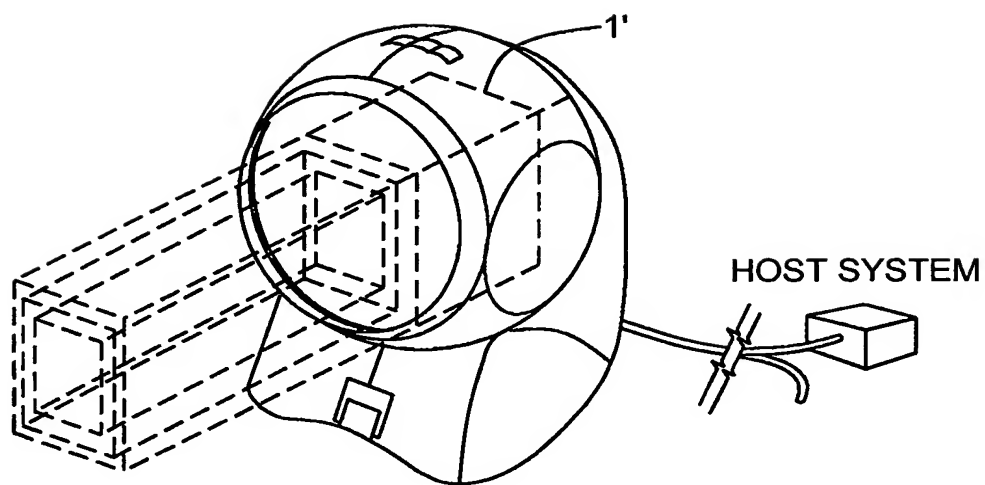


FIG. 1V3



FIG. 1V4

2060/0" T506500T



PRESENTATION TYPE SCANNER

FIG. 1V5

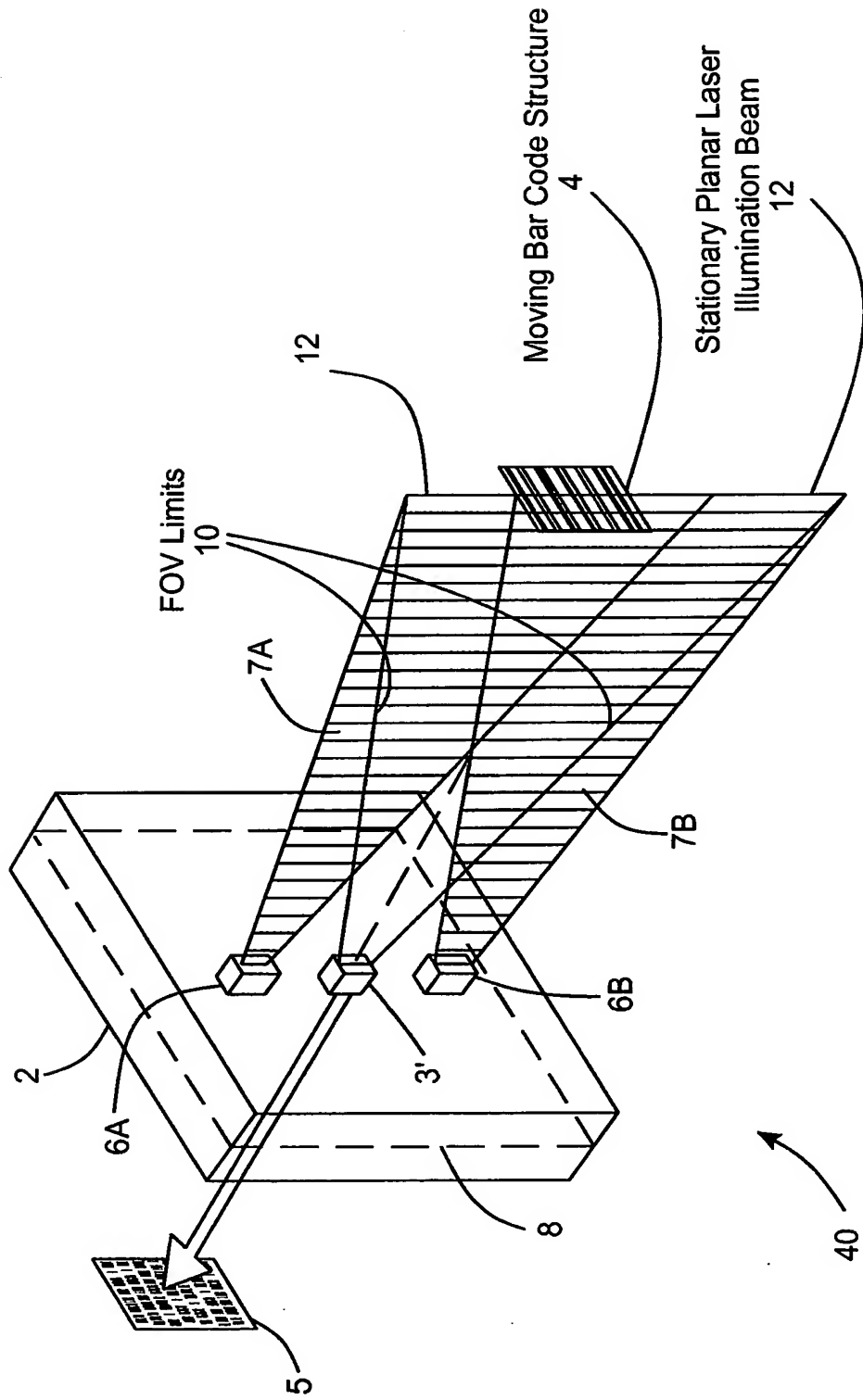


FIG. 2A

206040 T506500T

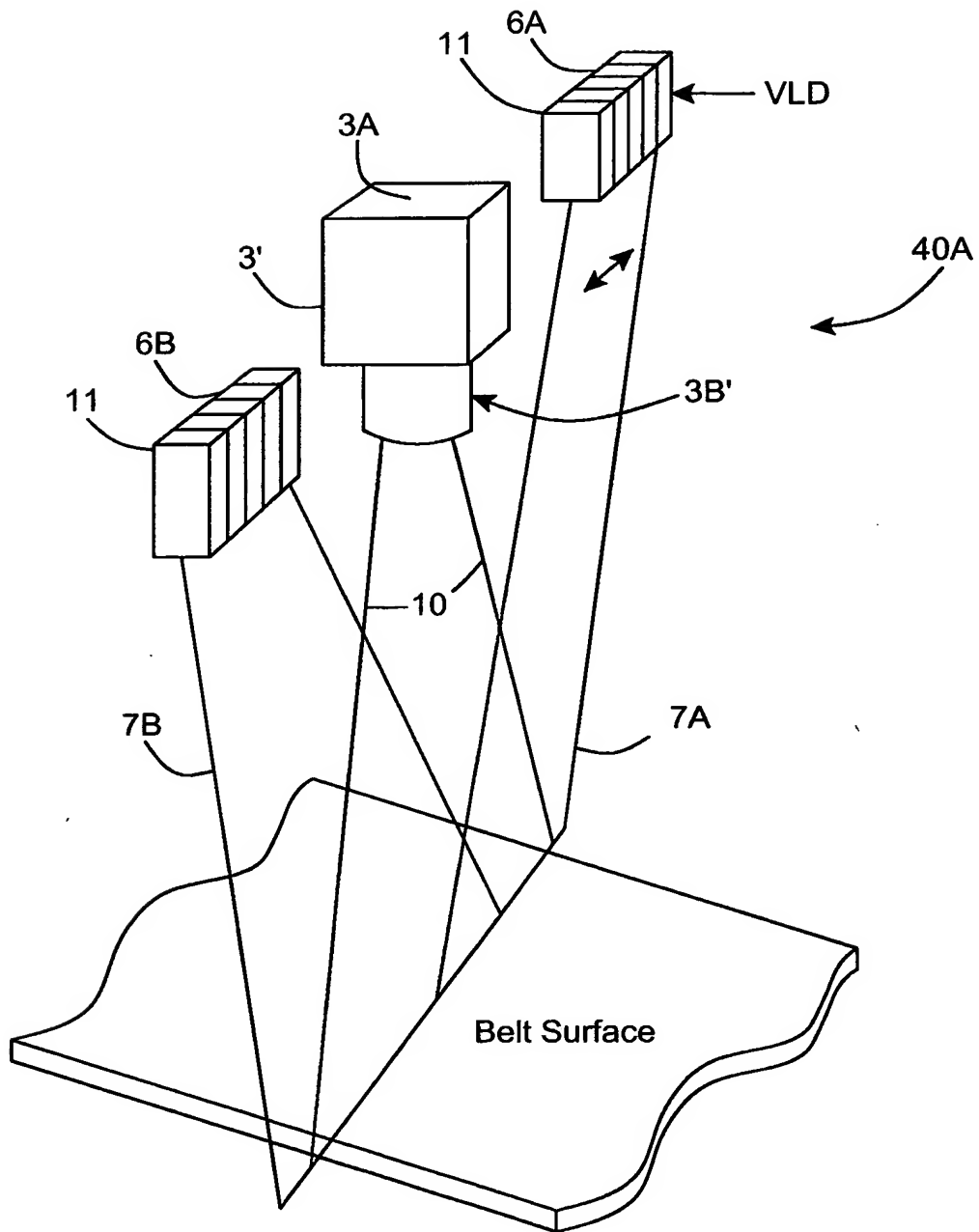
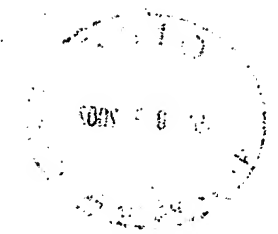


FIG. 2B1

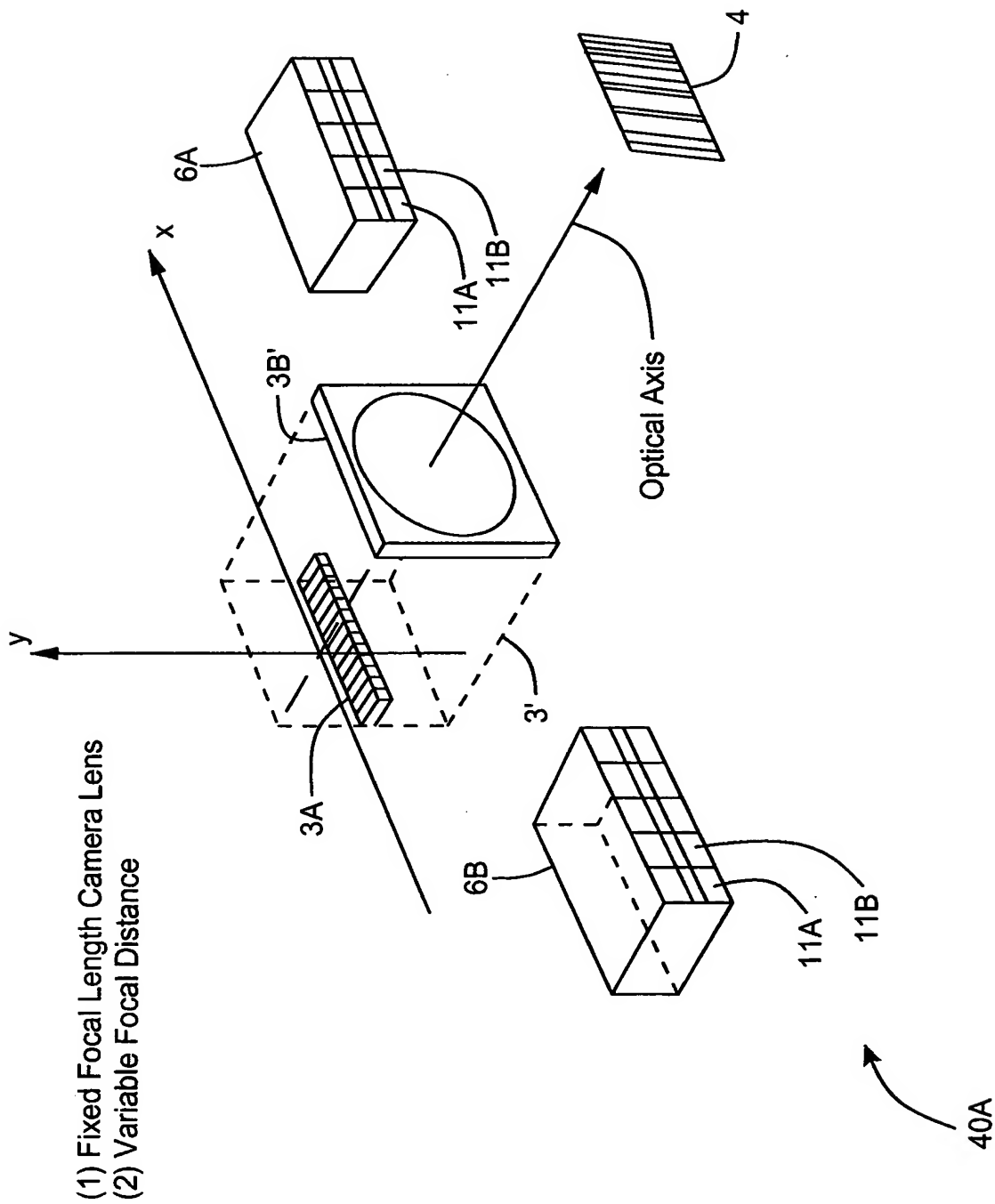


FIG. 2B2

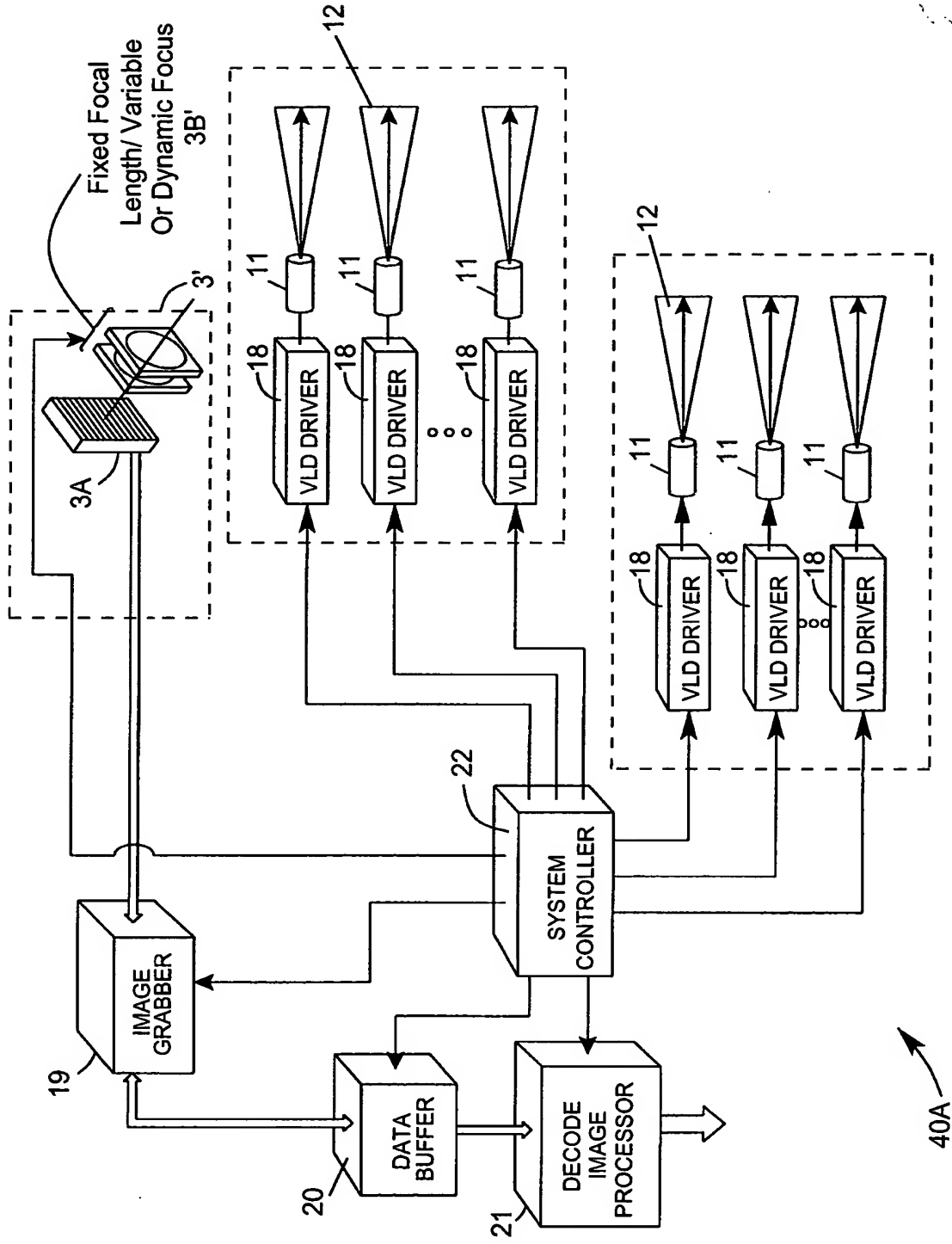


FIG. 2C1

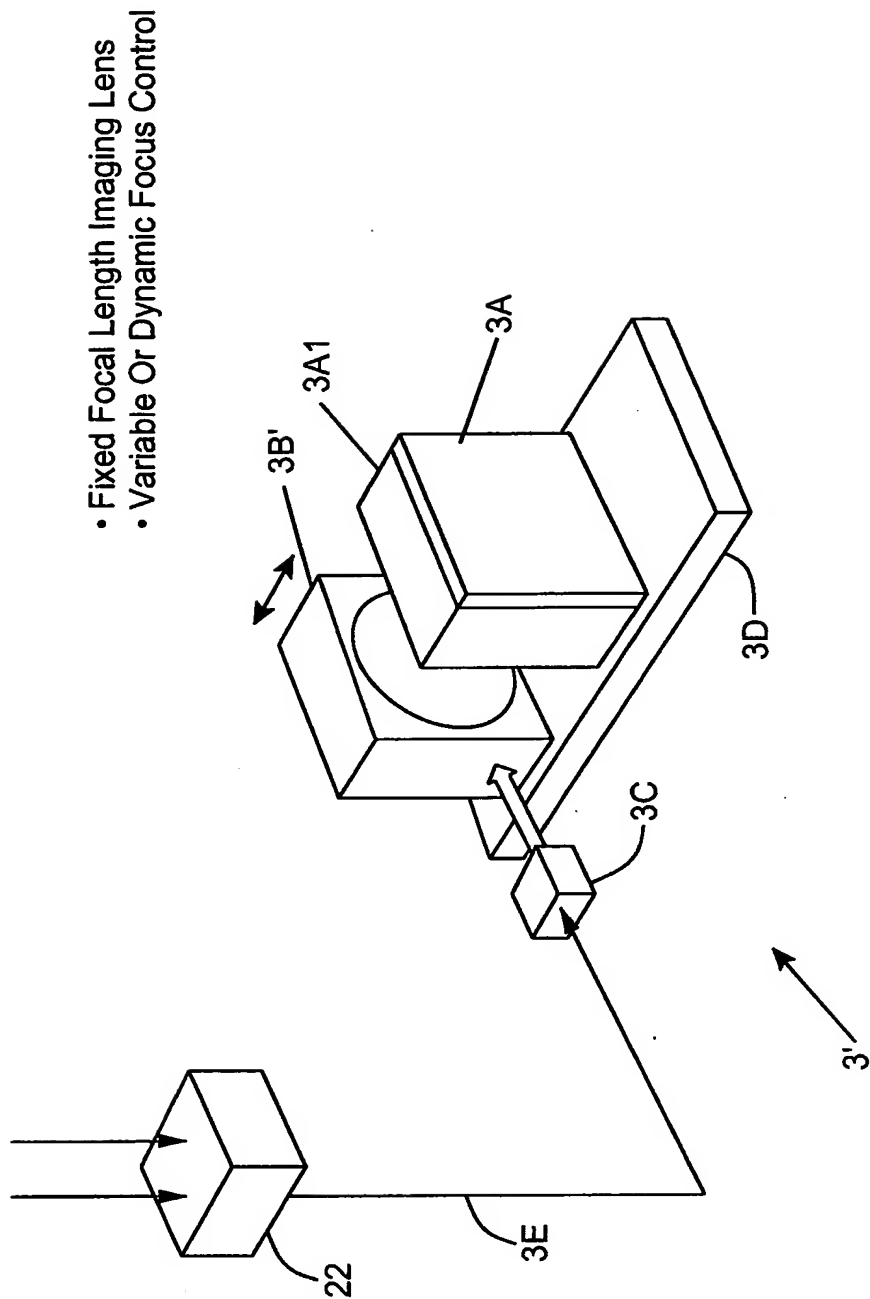
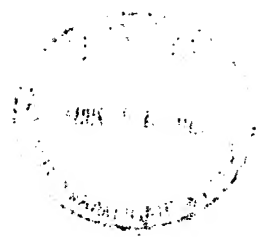


FIG. 2C2



205040" T506500T

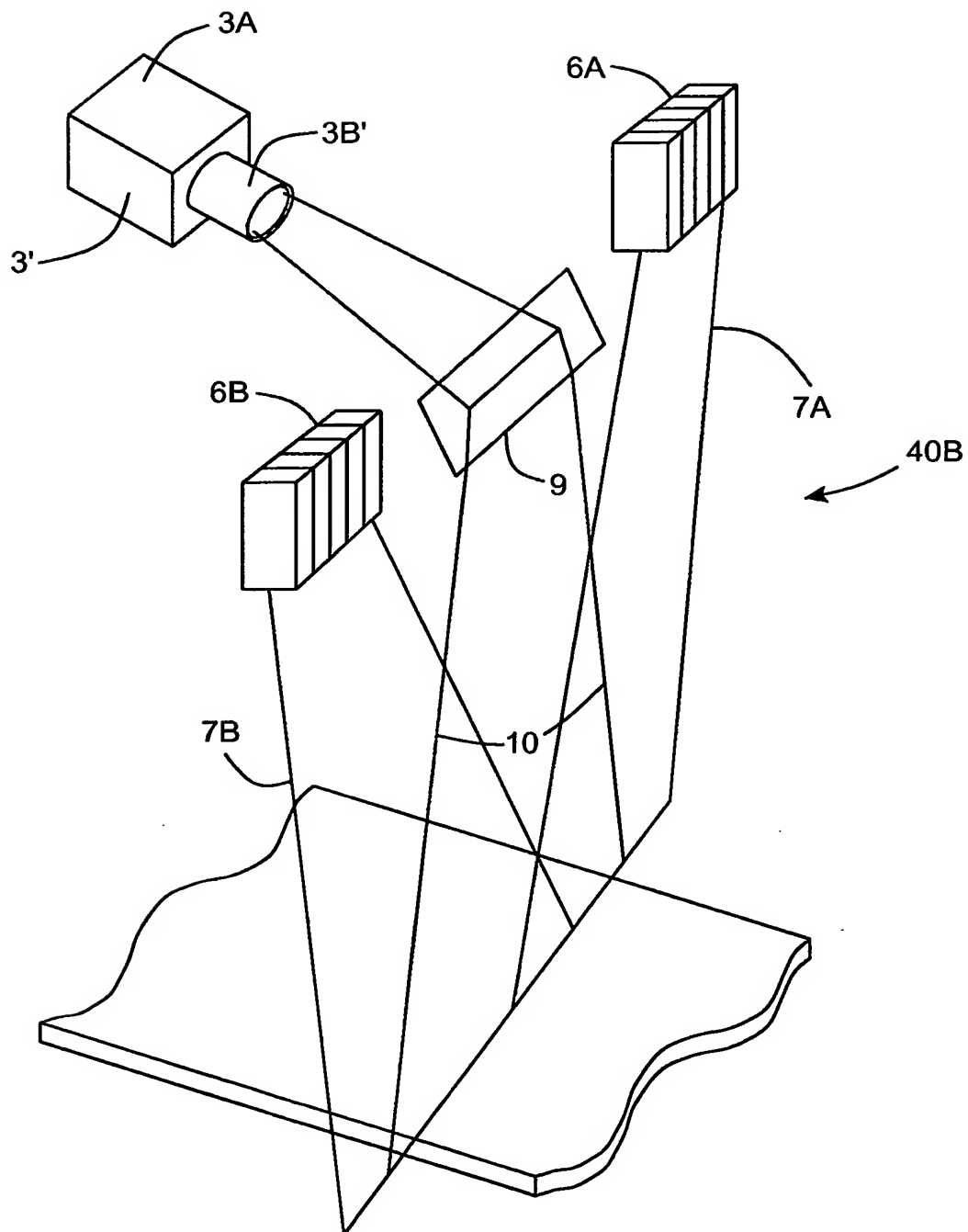
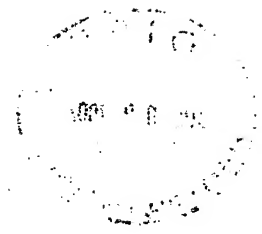
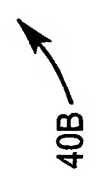


FIG. 2D1



- Fixed Focal Length Imaging Lens
- Variable Or Dynamic Focus Control

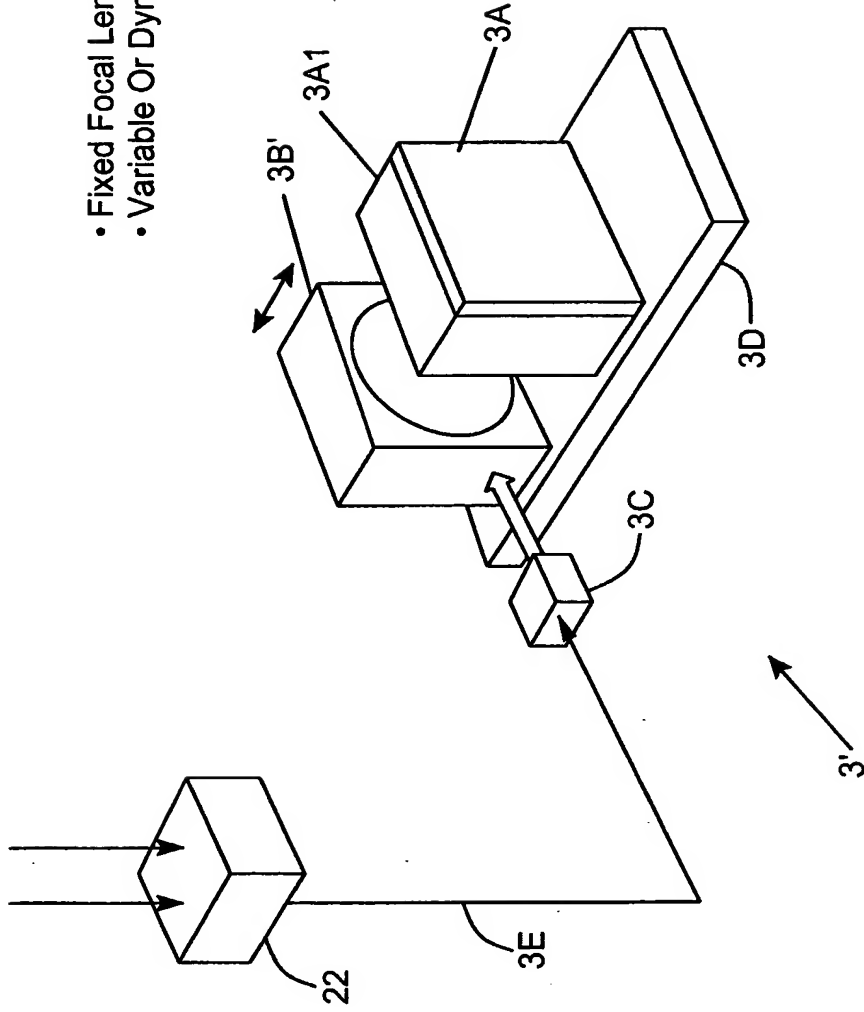


FIG. 2D3

206020" T506500T

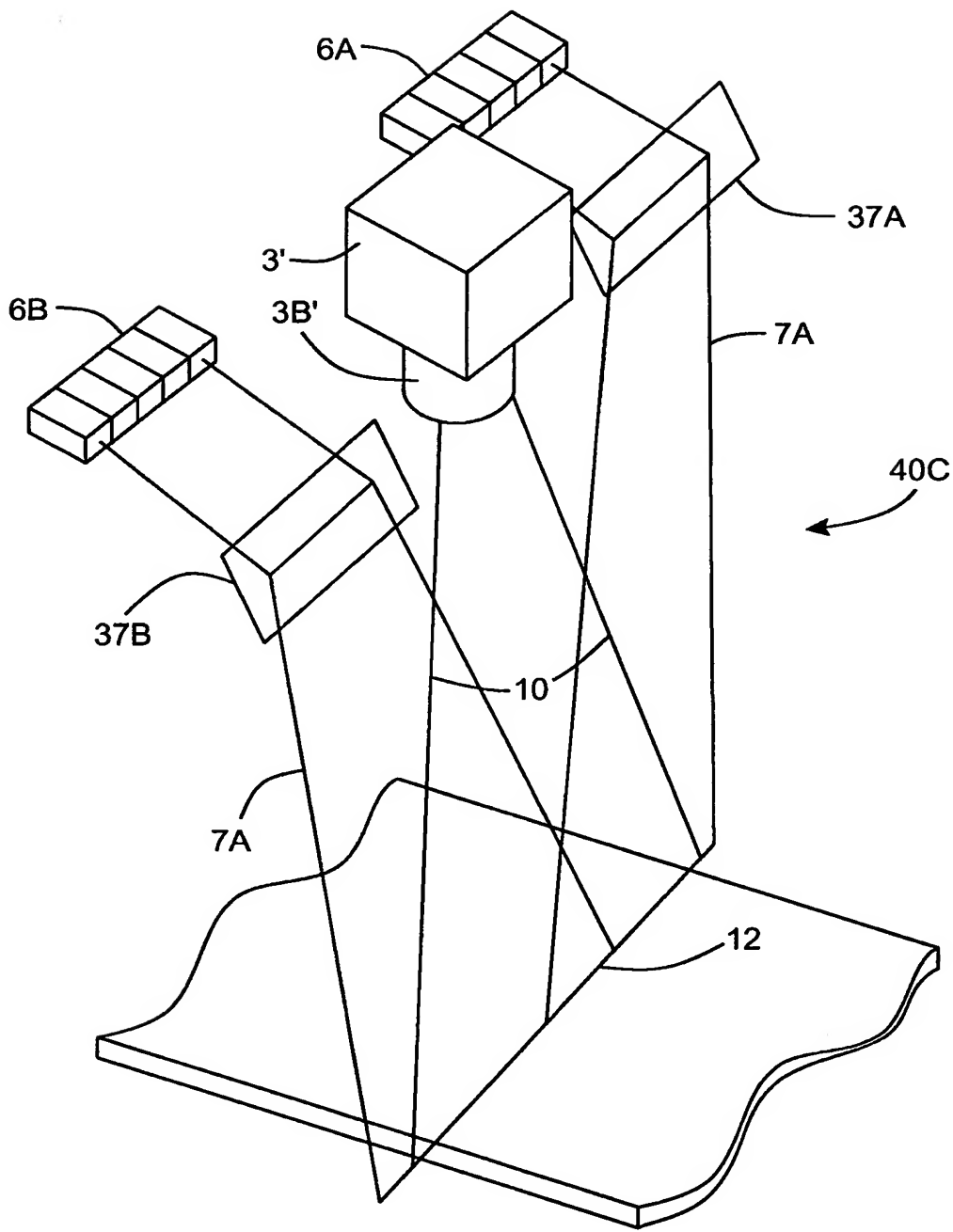


FIG. 2E1

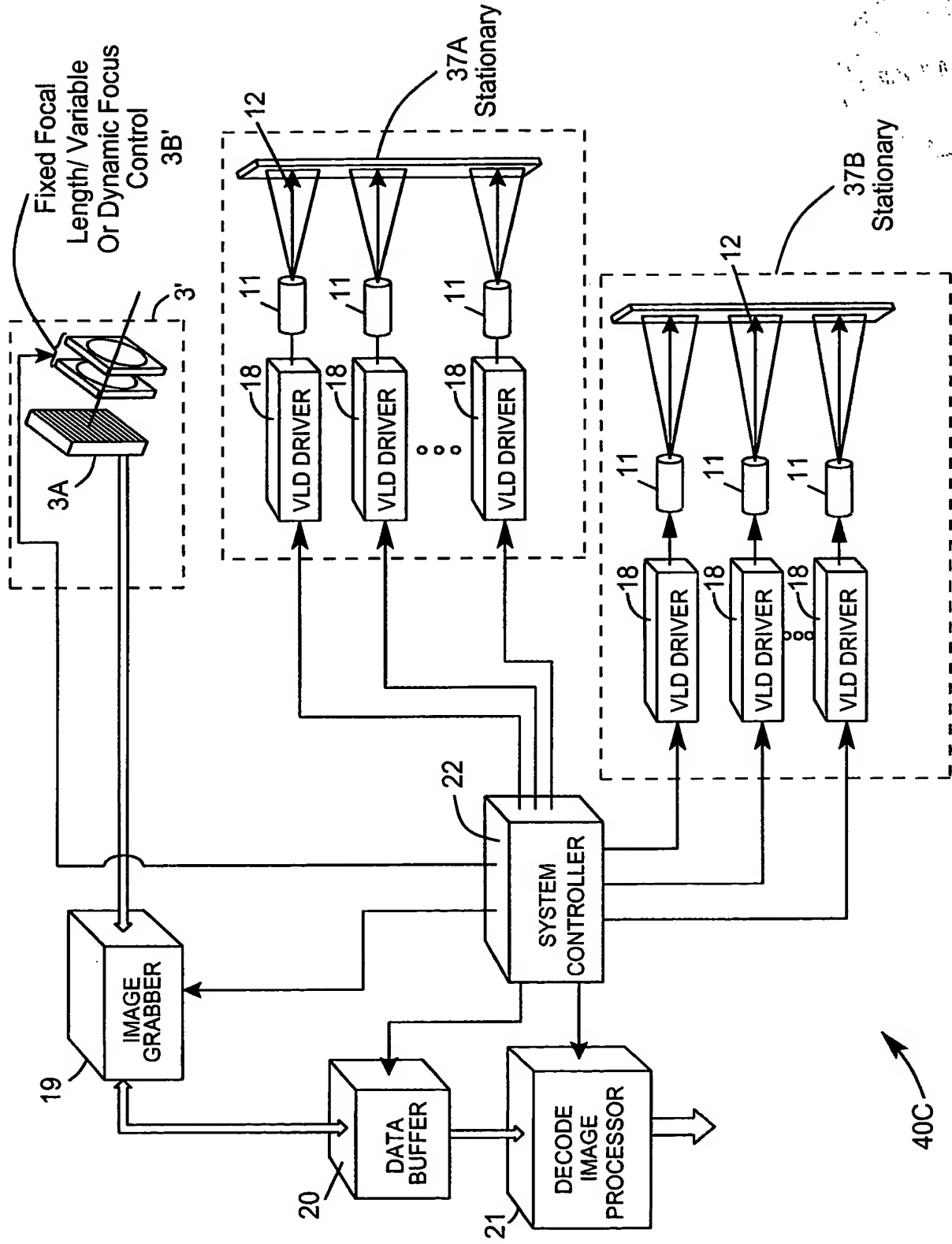


FIG. 2E2

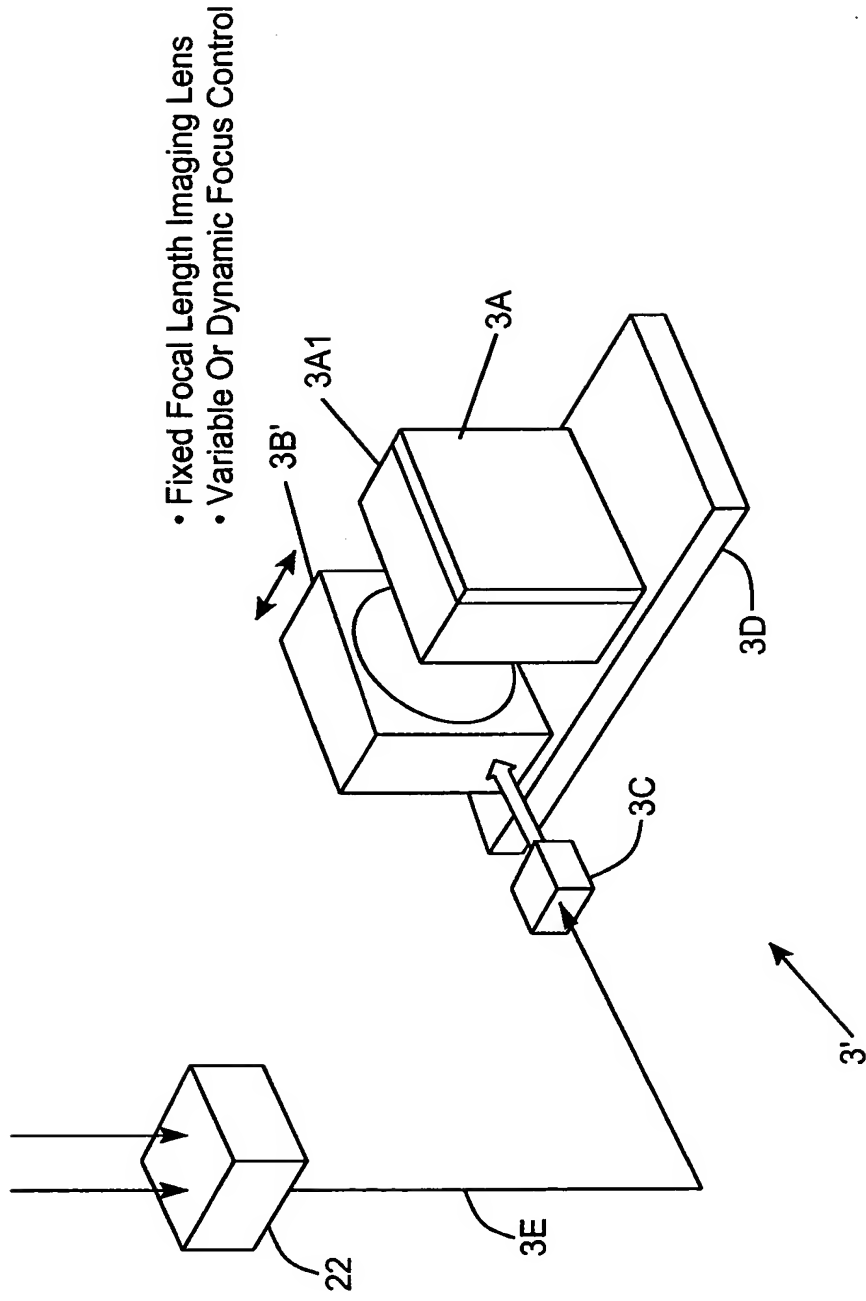


FIG. 2E3



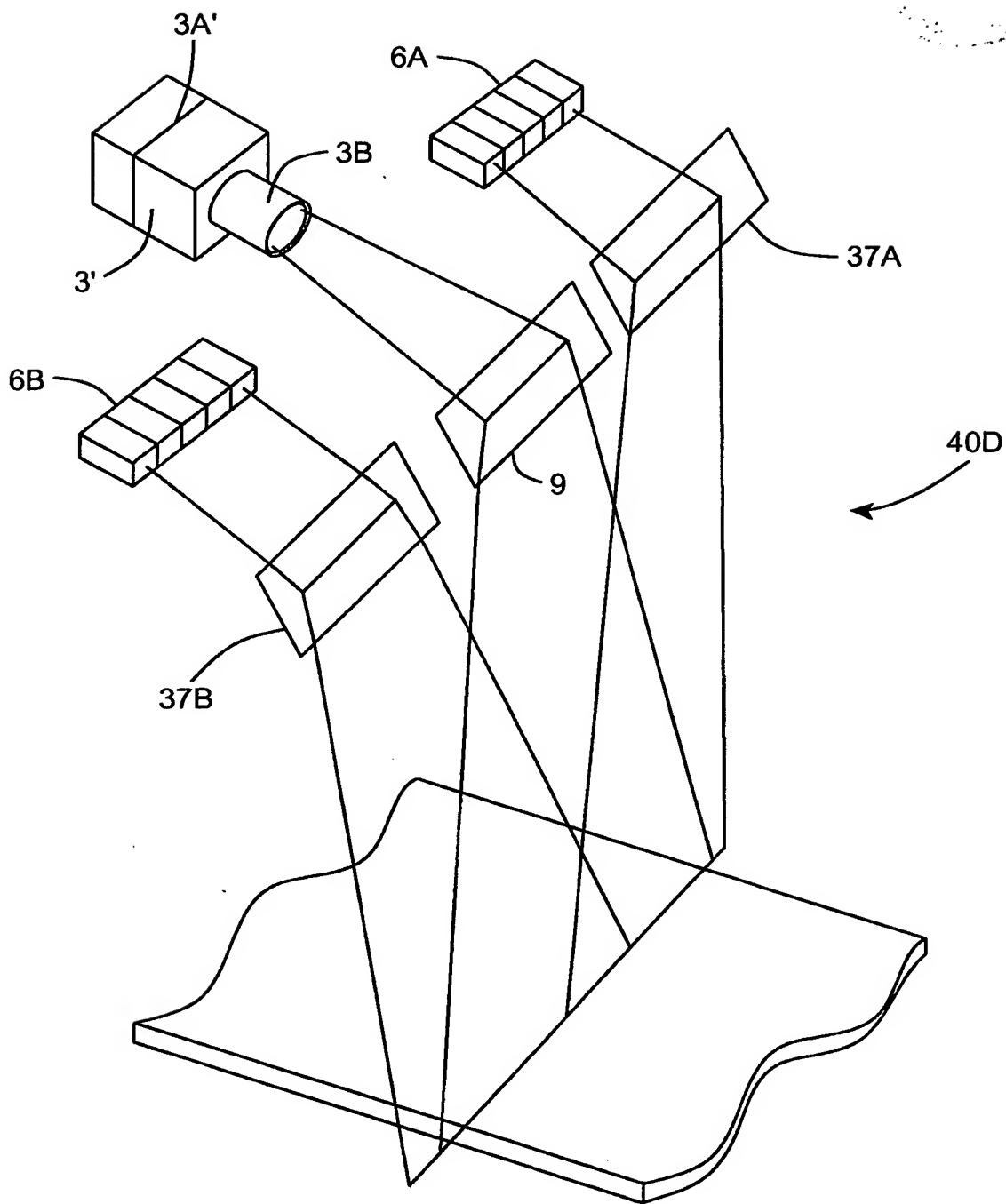


FIG. 2F1



40D

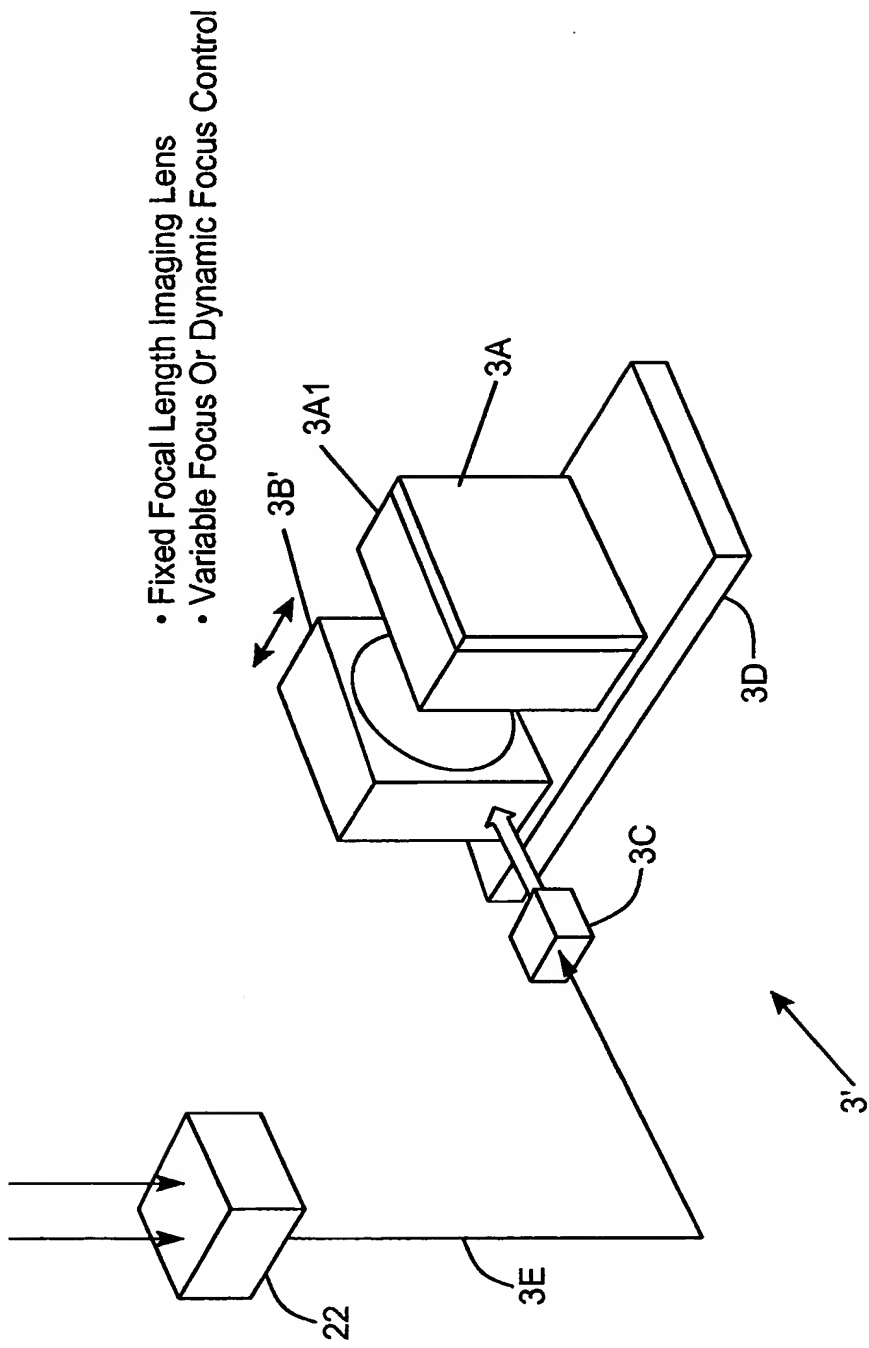
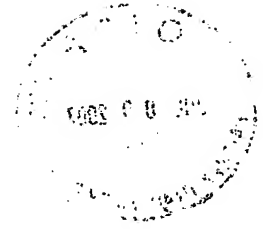


FIG. 2F3

206020"TS06500T



Top Conveyor Scanner:

- Fixed Focal Length Imaging Lens
- Variable Focal Distance Control

Side Conveyor Scanner:

- Fixed Focal Length Imaging Lens
- Dynamic Focal Distance Control

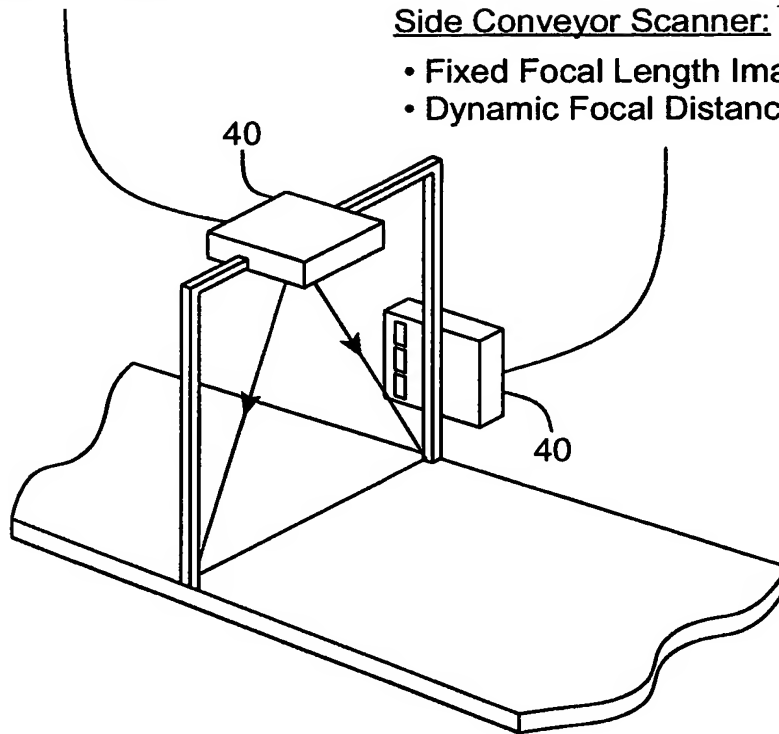


FIG. 2G

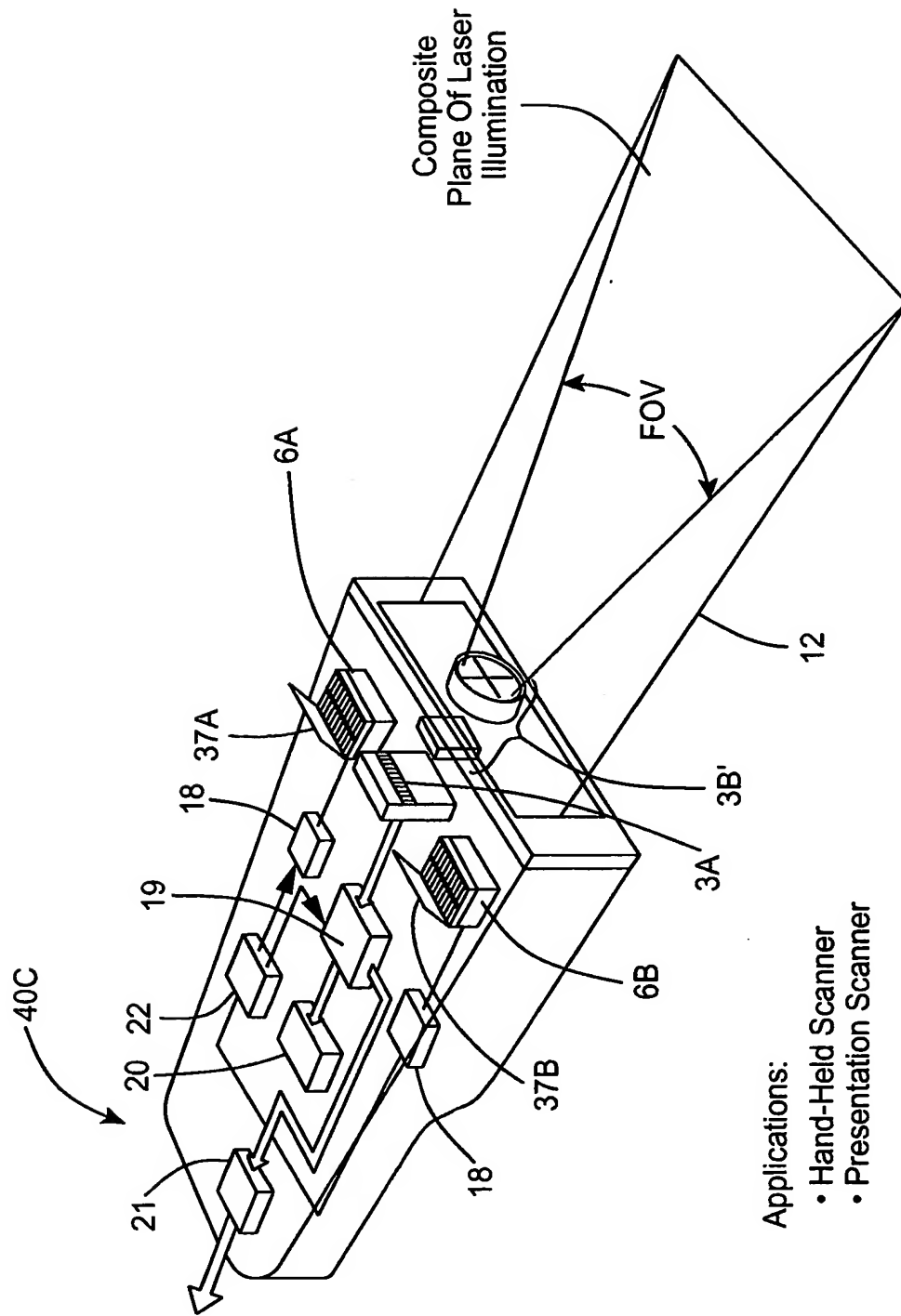


FIG. 2H

Applications:

- Hand-Held Scanner
- Presentation Scanner

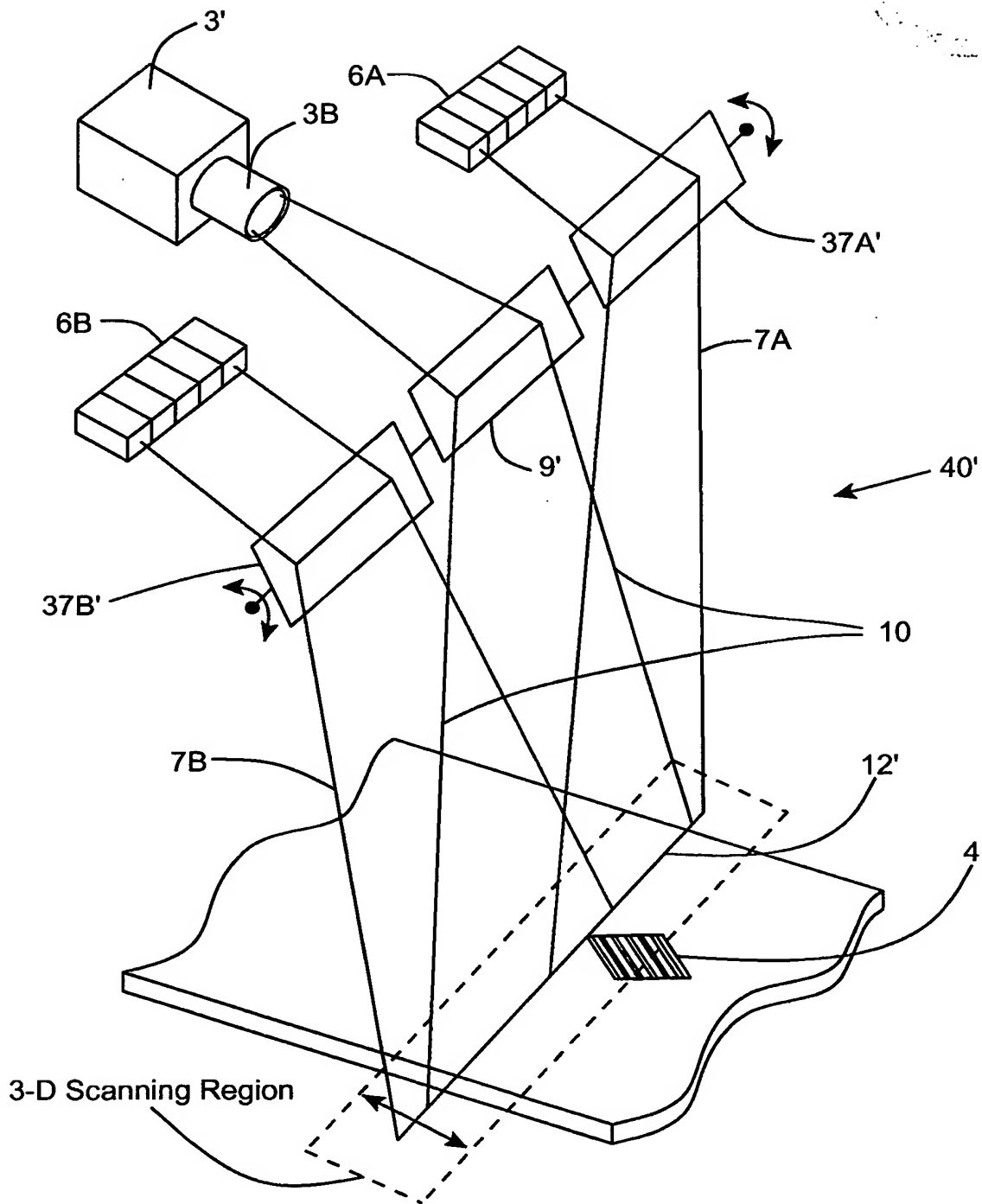


FIG. 212

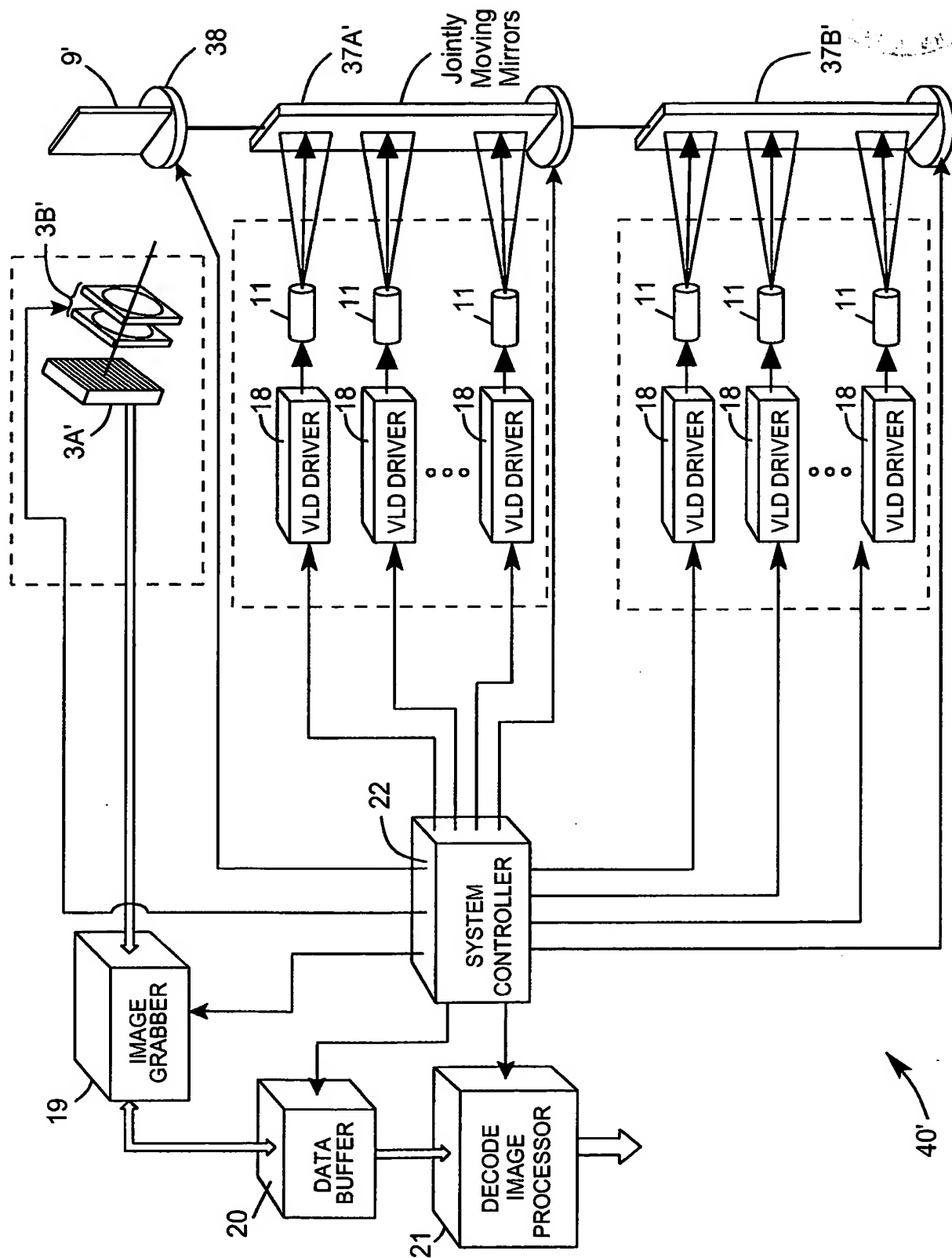


FIG. 2I3

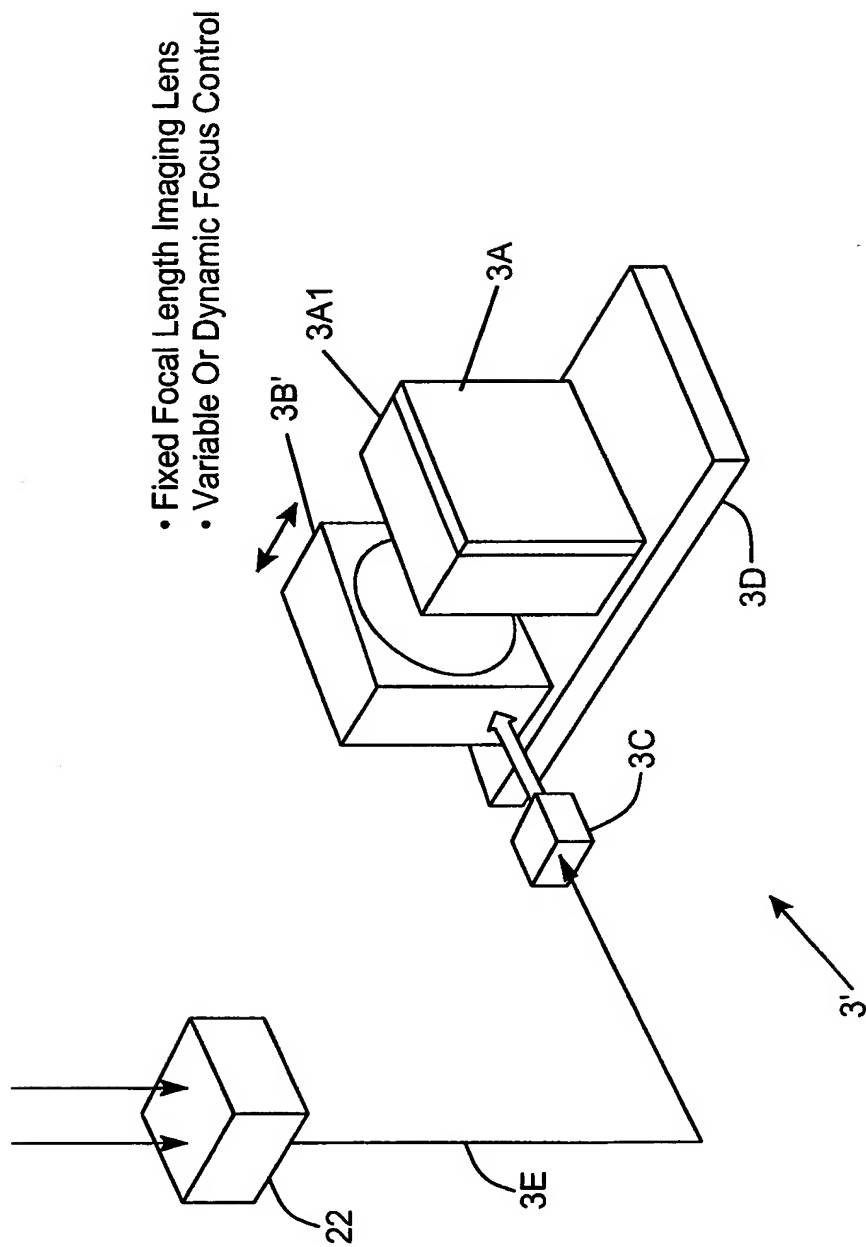


FIG. 214

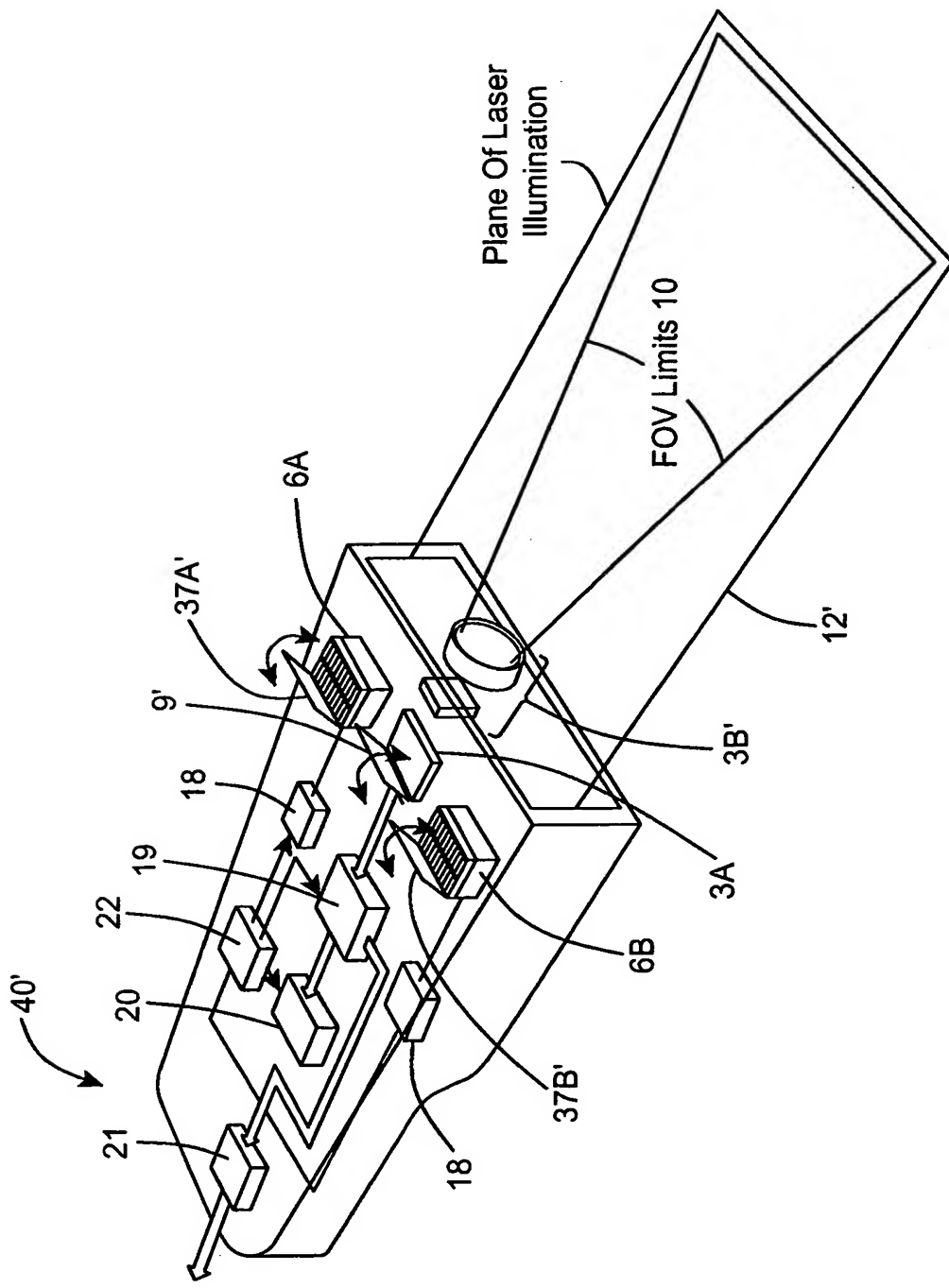


FIG. 215

206020-T506500T

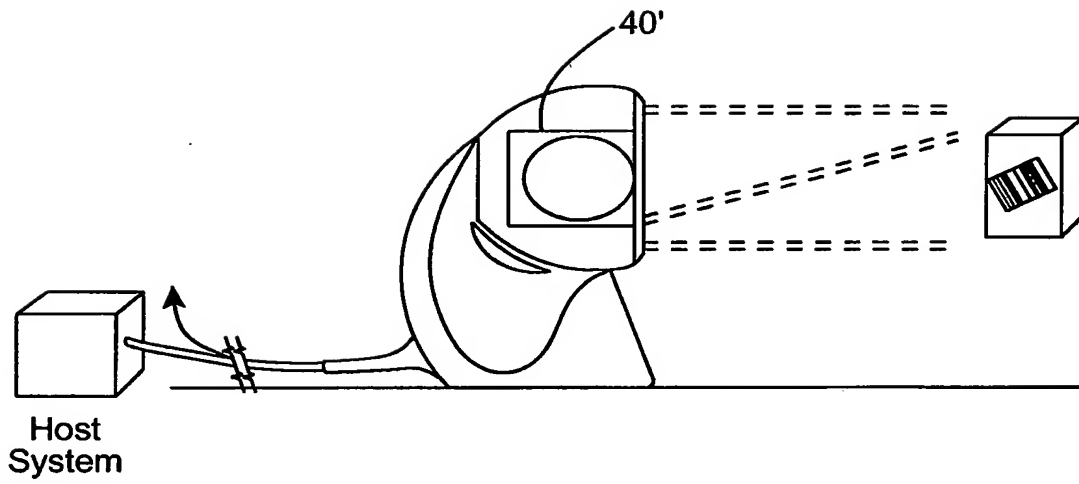
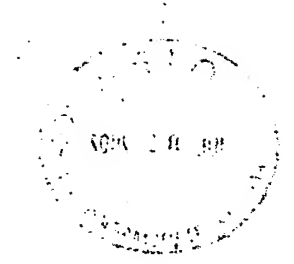
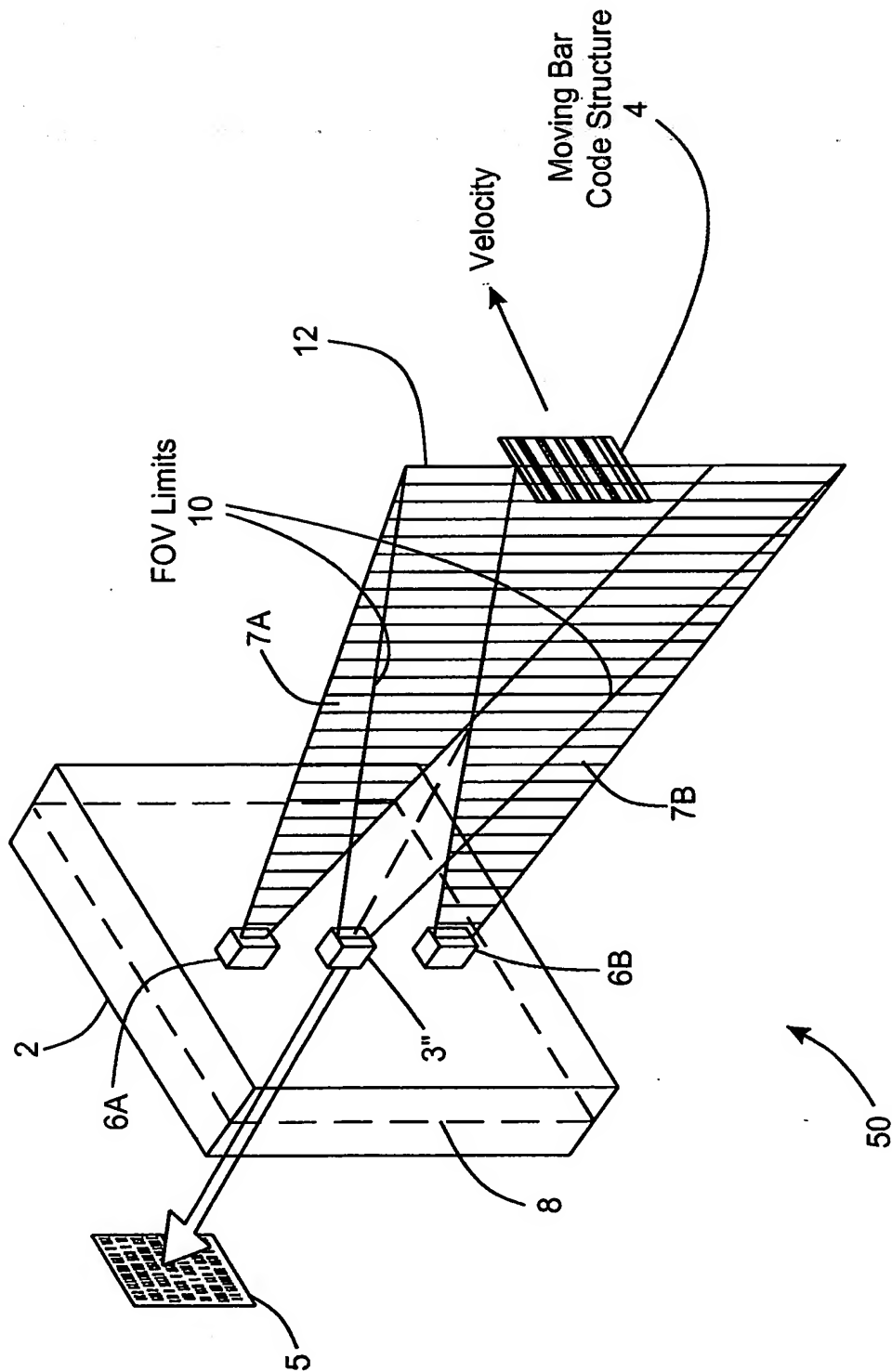
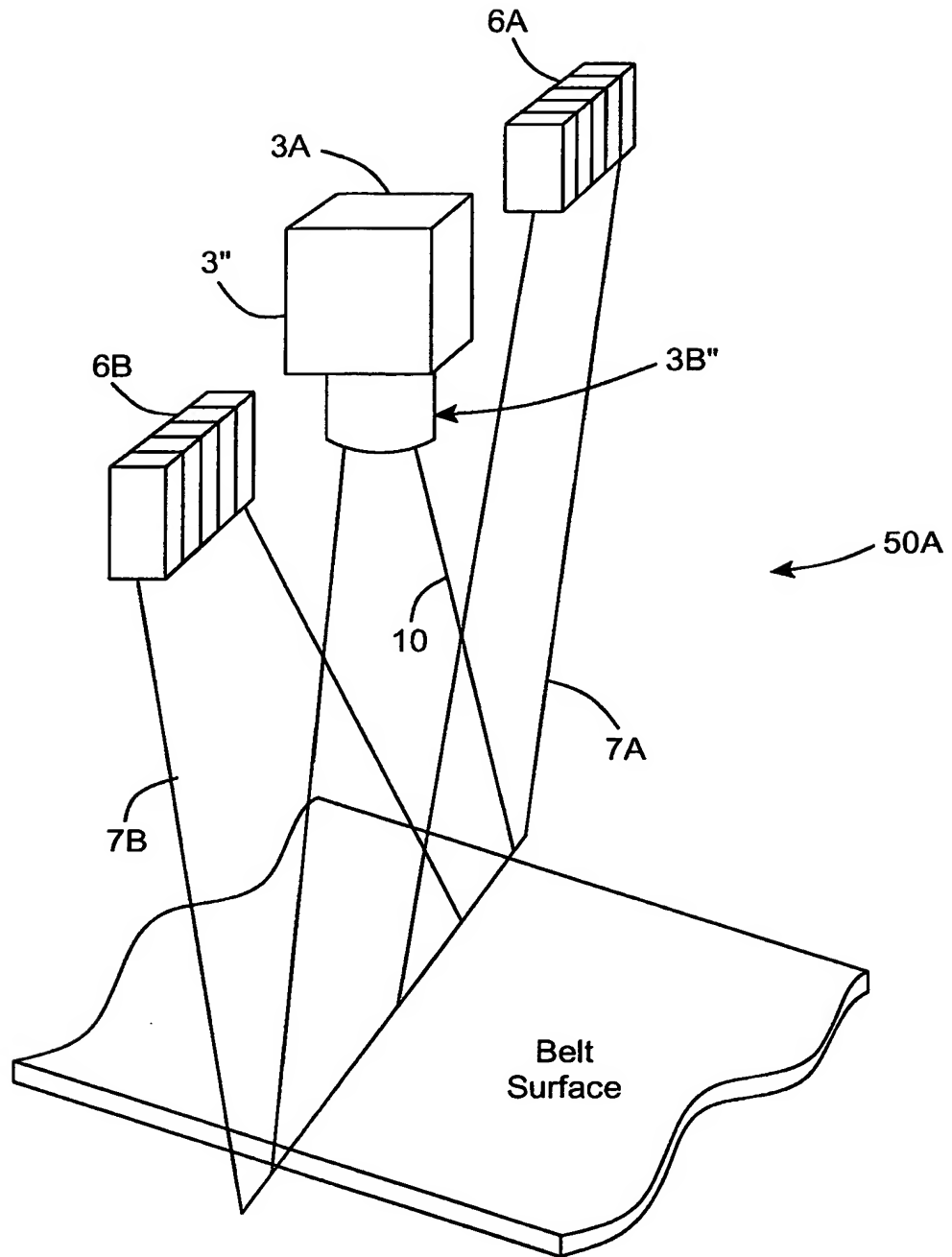


FIG. 216



206020-1506500T



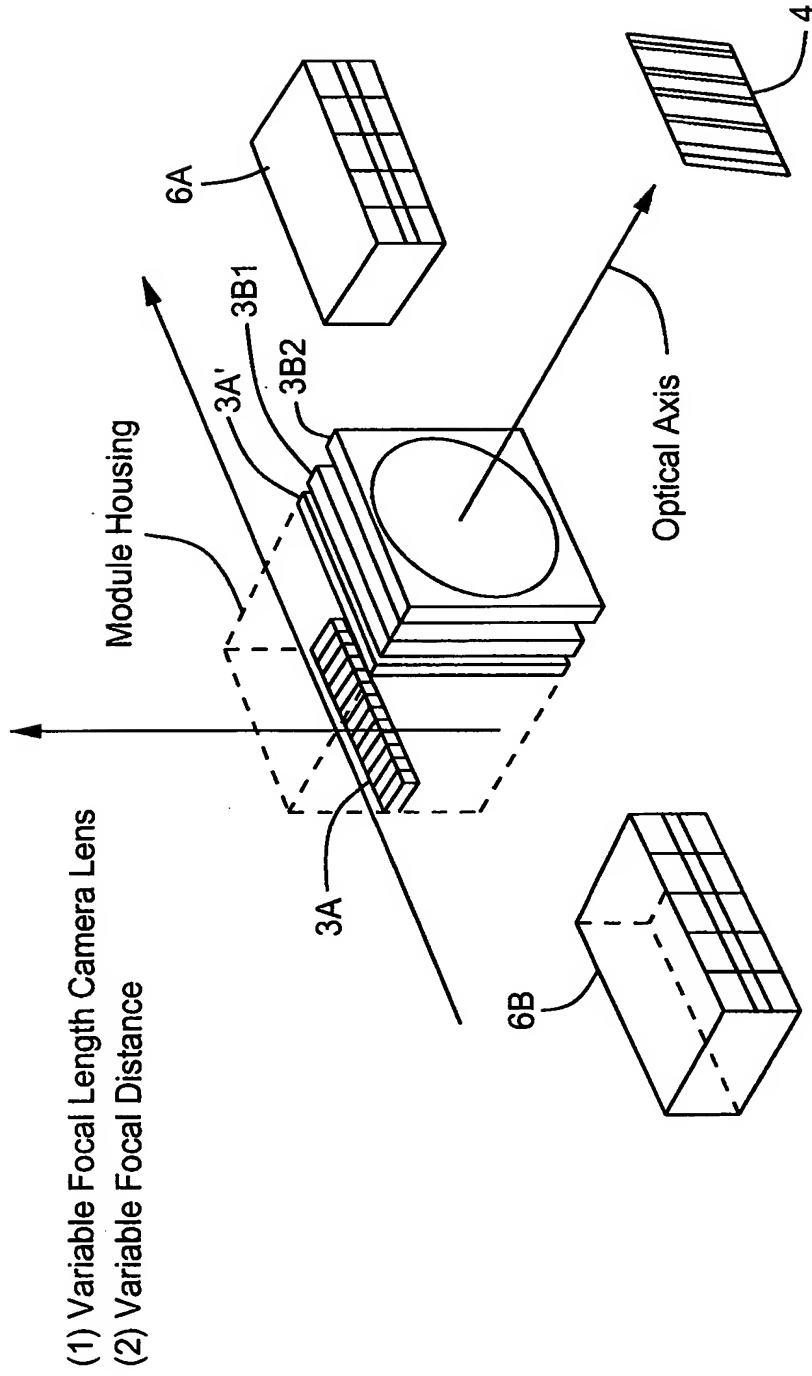


FIG. 3B2

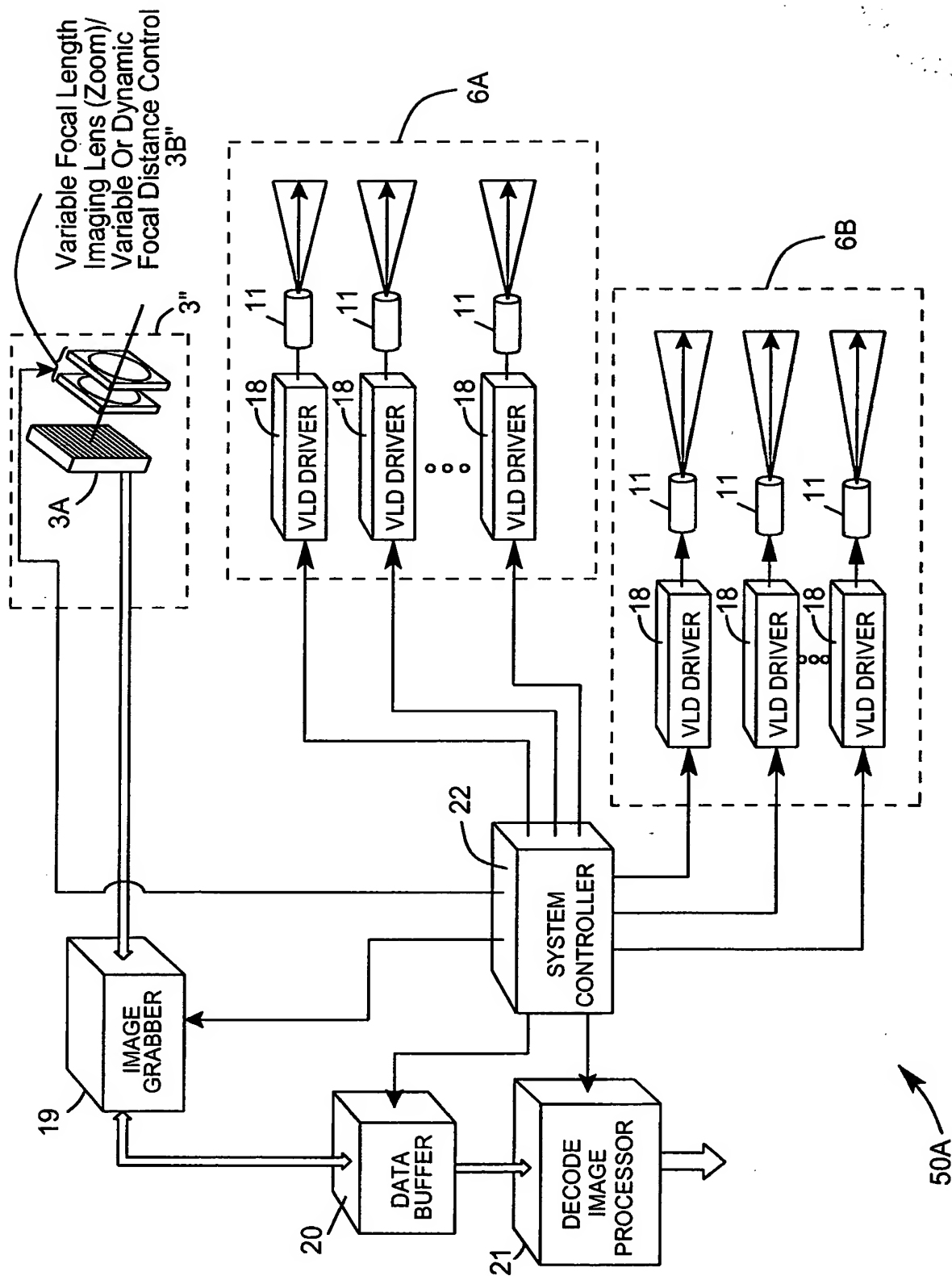


FIG. 3C1

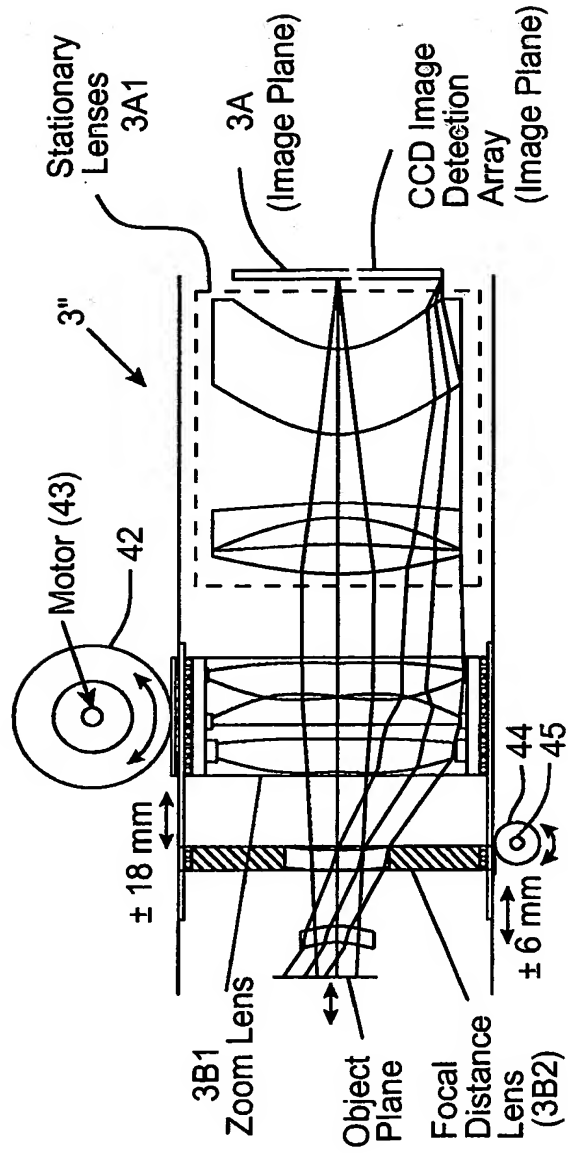


FIG. 3D



20060207506500T

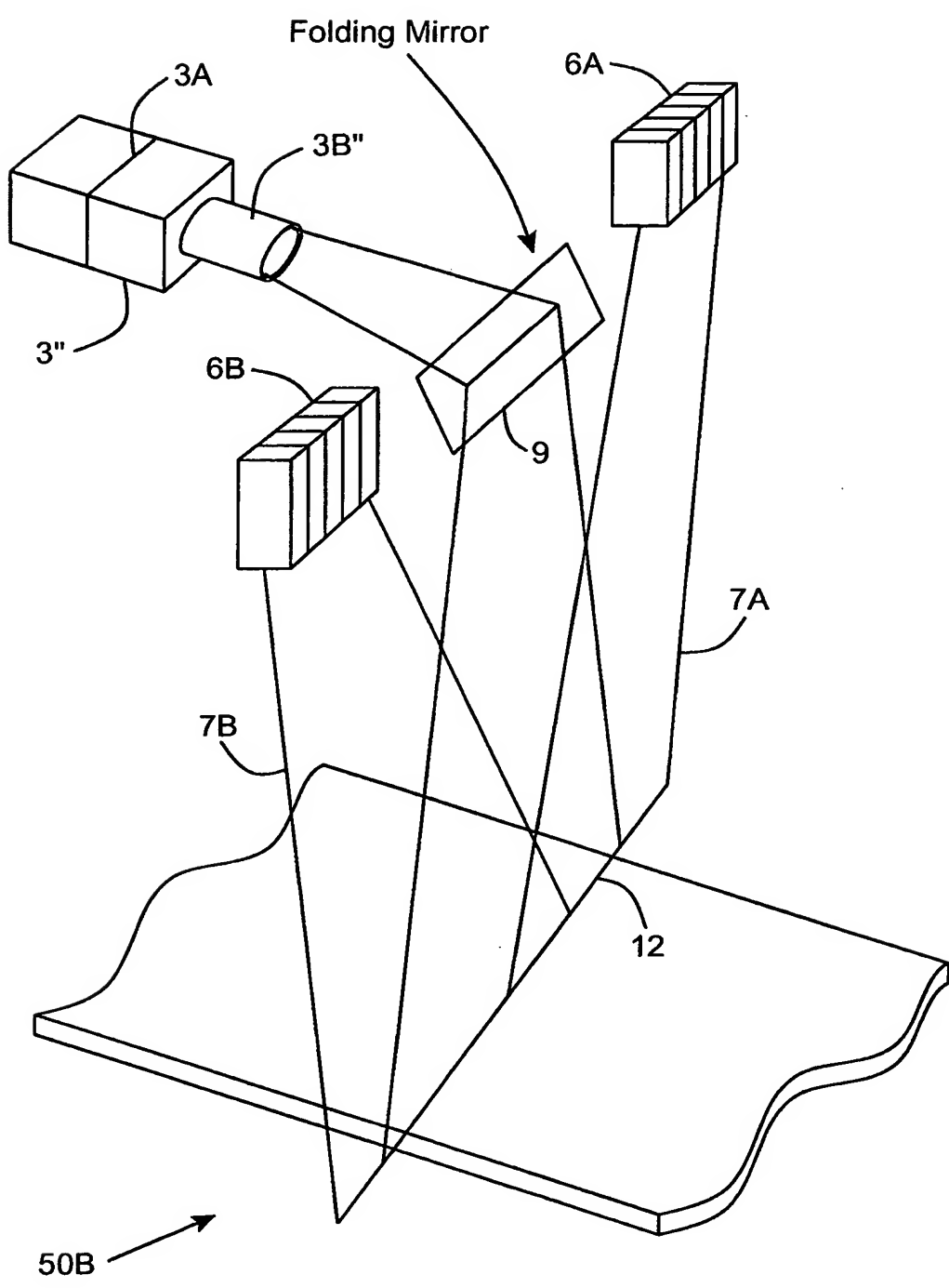


FIG. 3E1

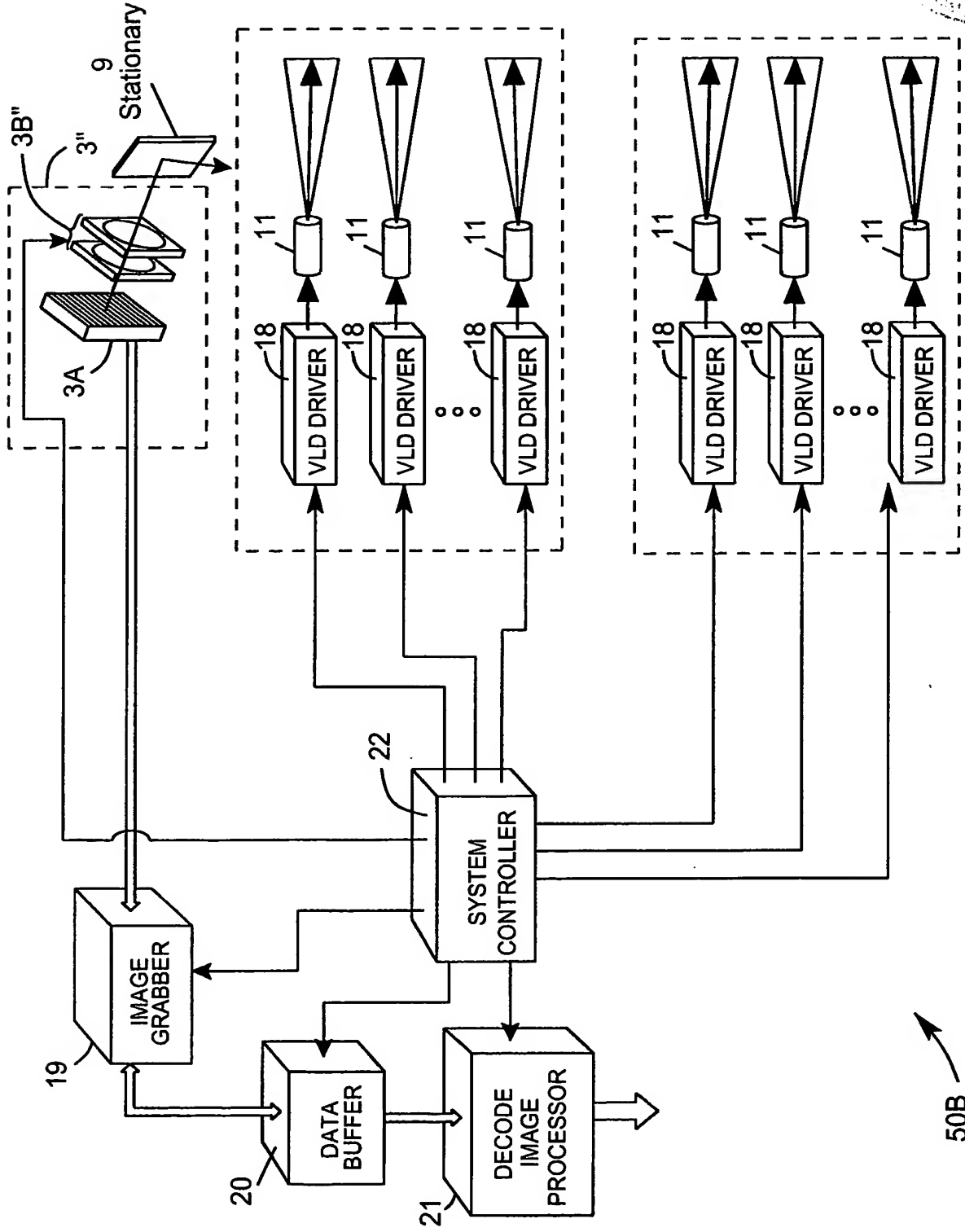


FIG. 3E2

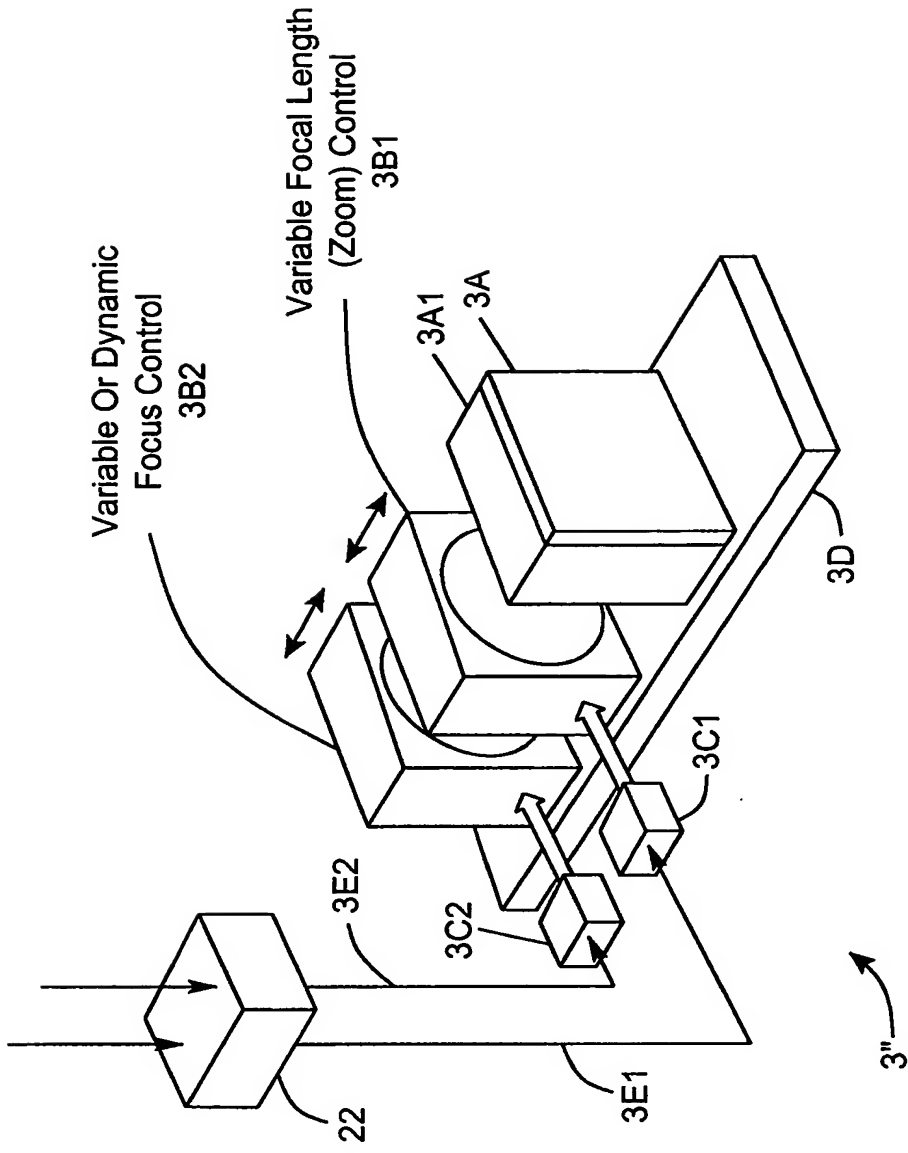


FIG. 3E3

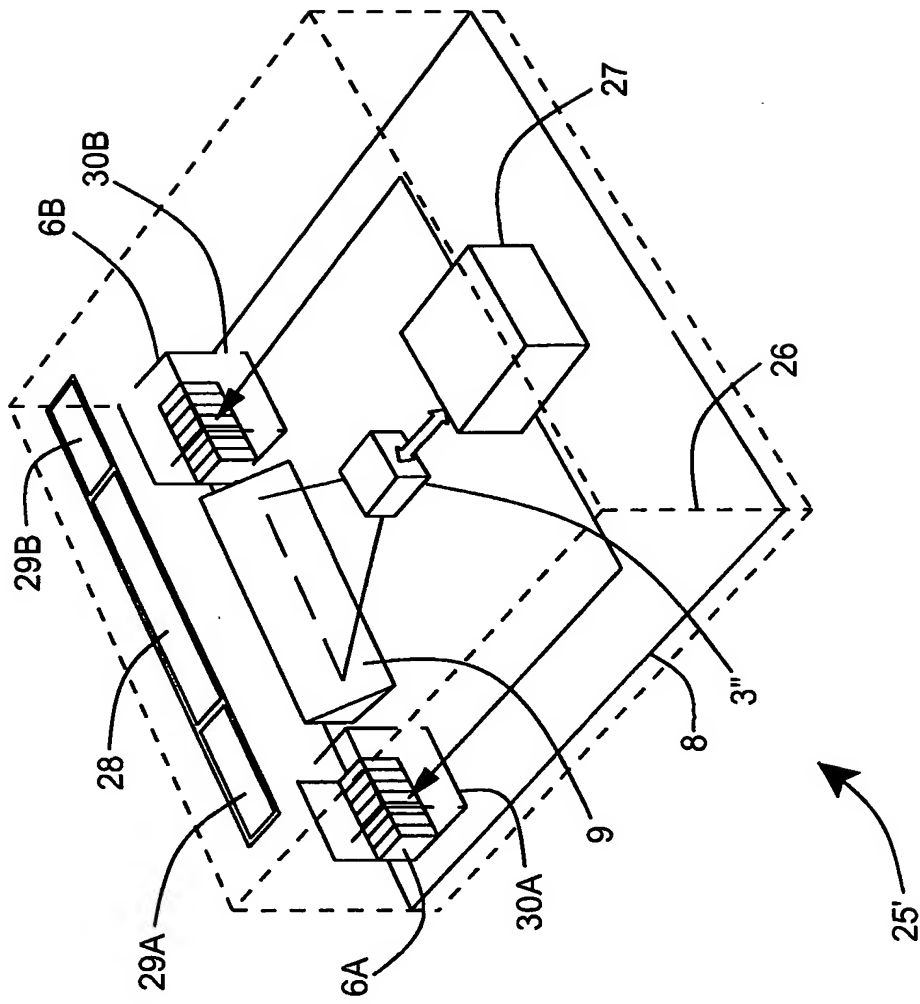


FIG. 3E4



206020" 15065007

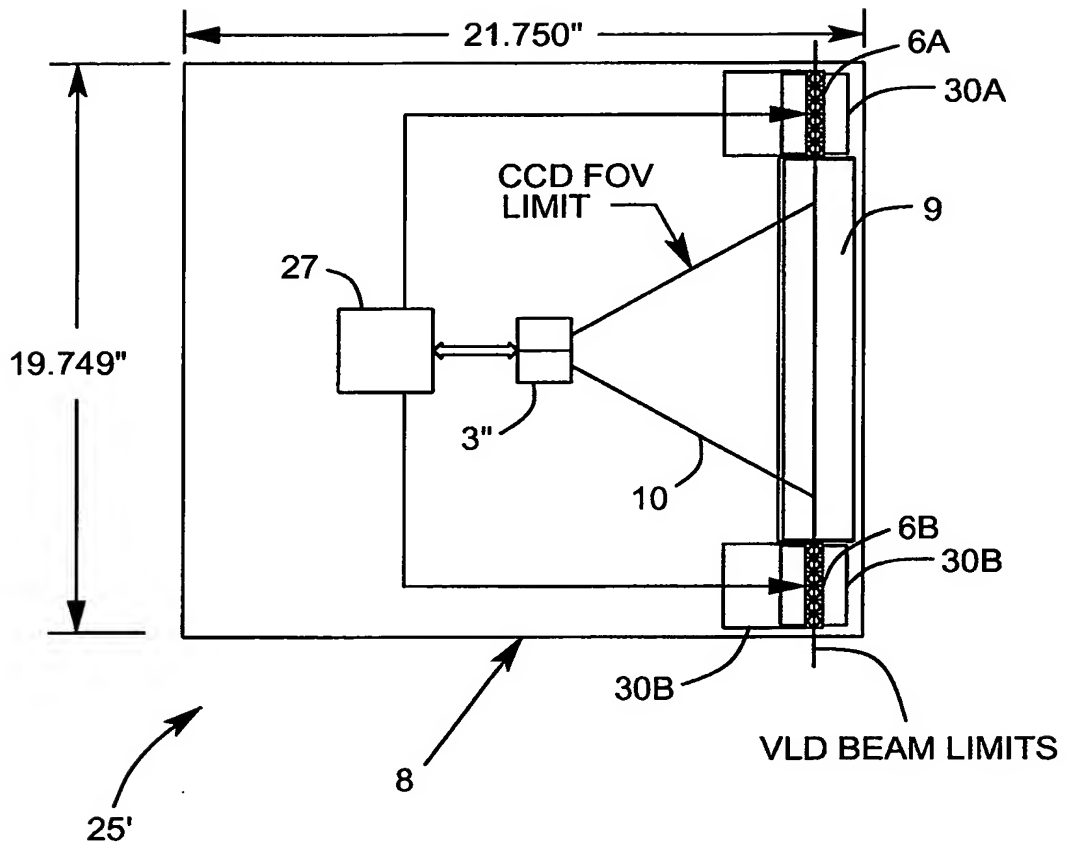


FIG. 3E5

206040" T506500T

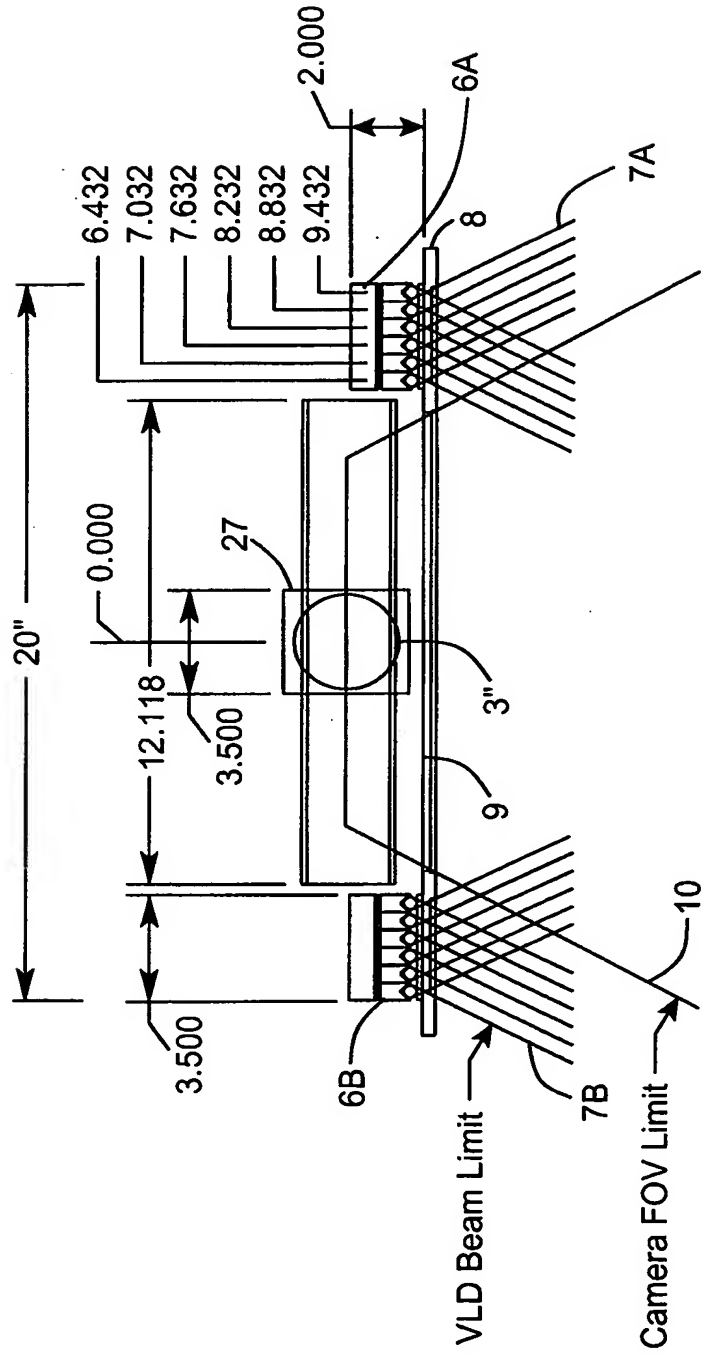
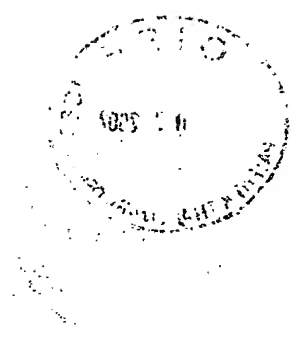


FIG. 3E6



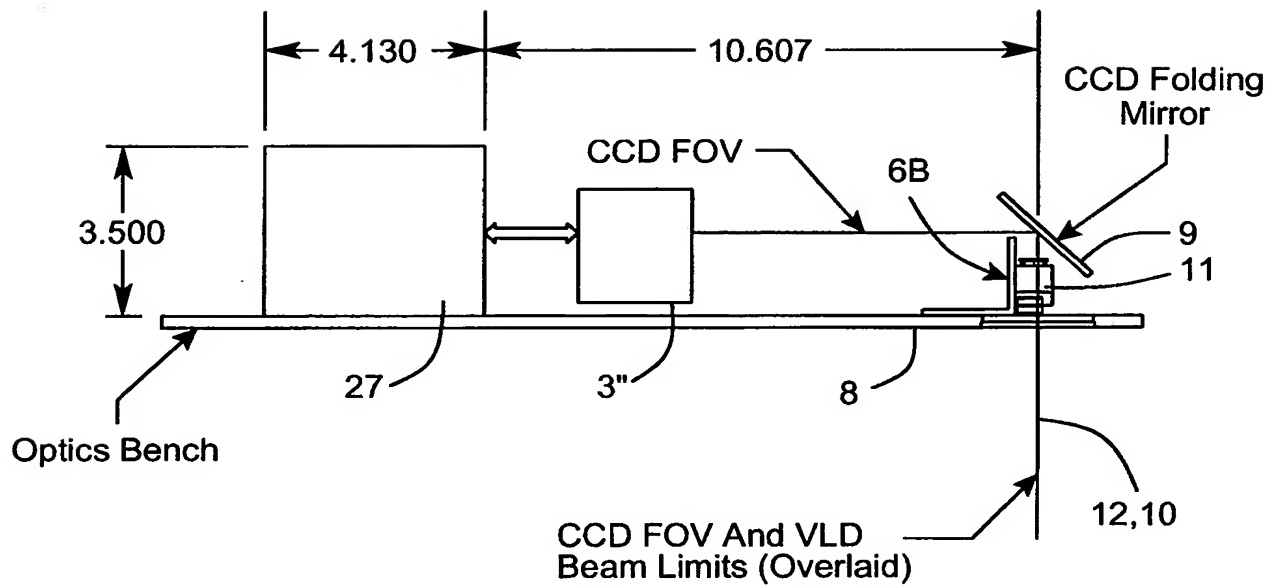


FIG. 3E7

206020" T506500T

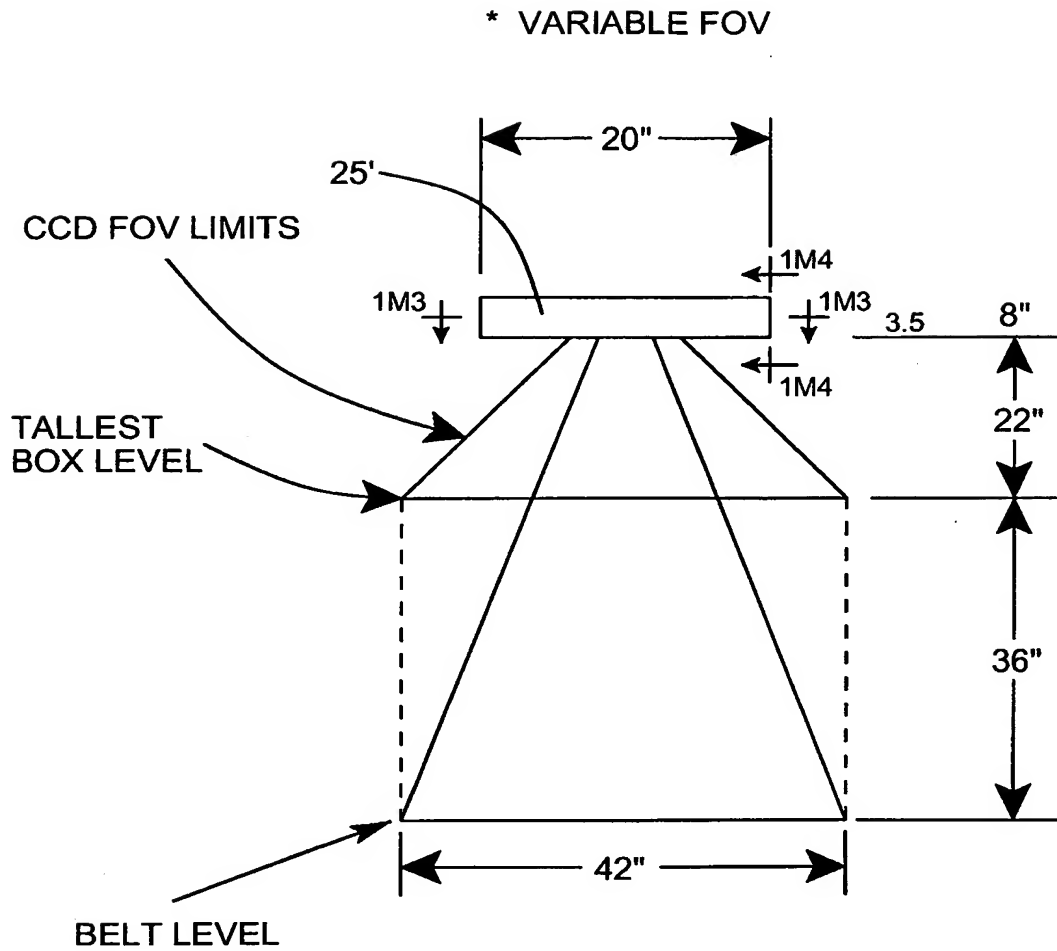


FIG. 3E8

206040" T506500T

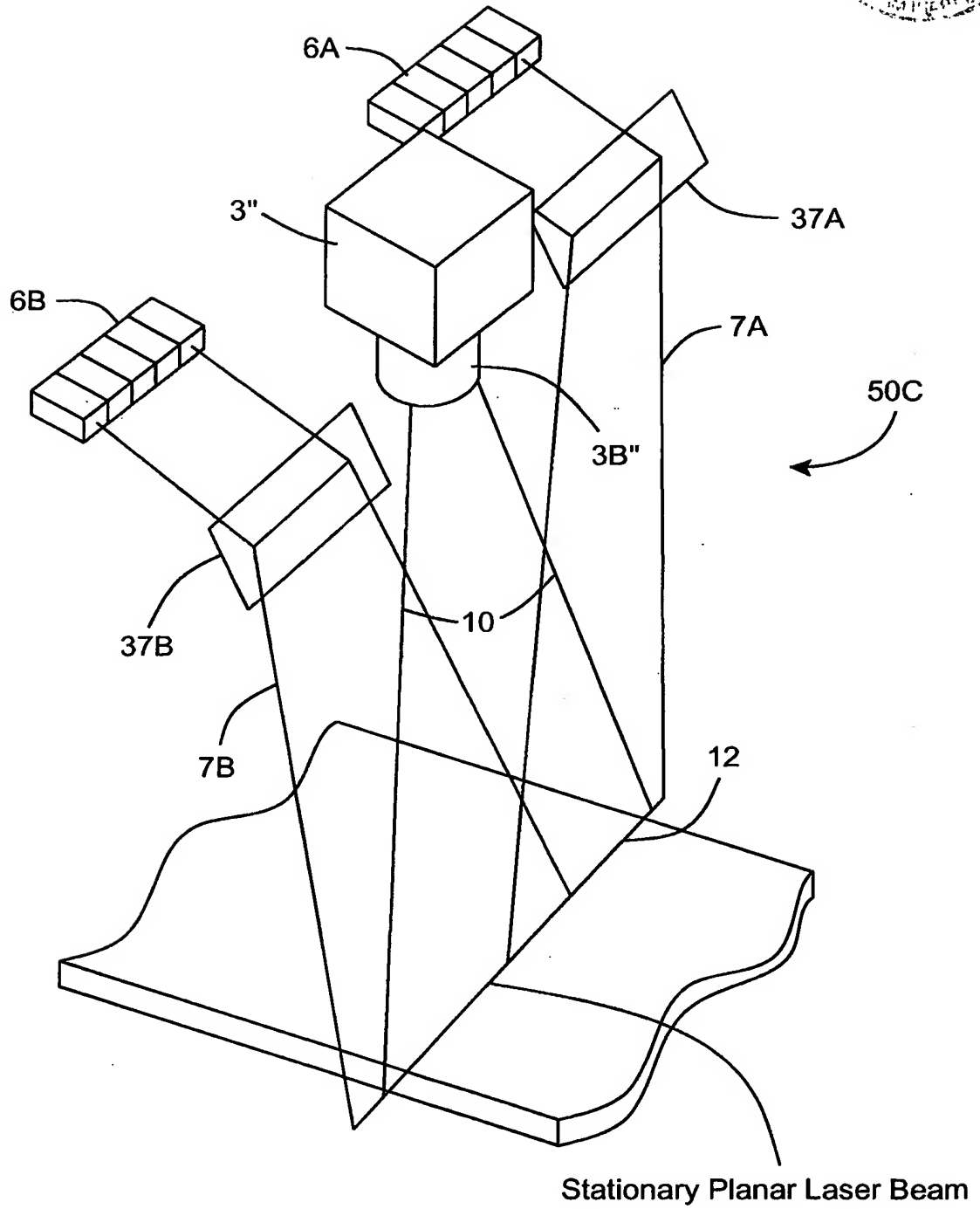
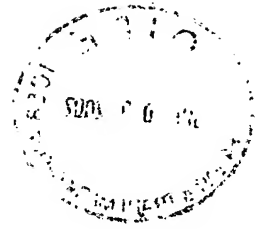


FIG. 3F1

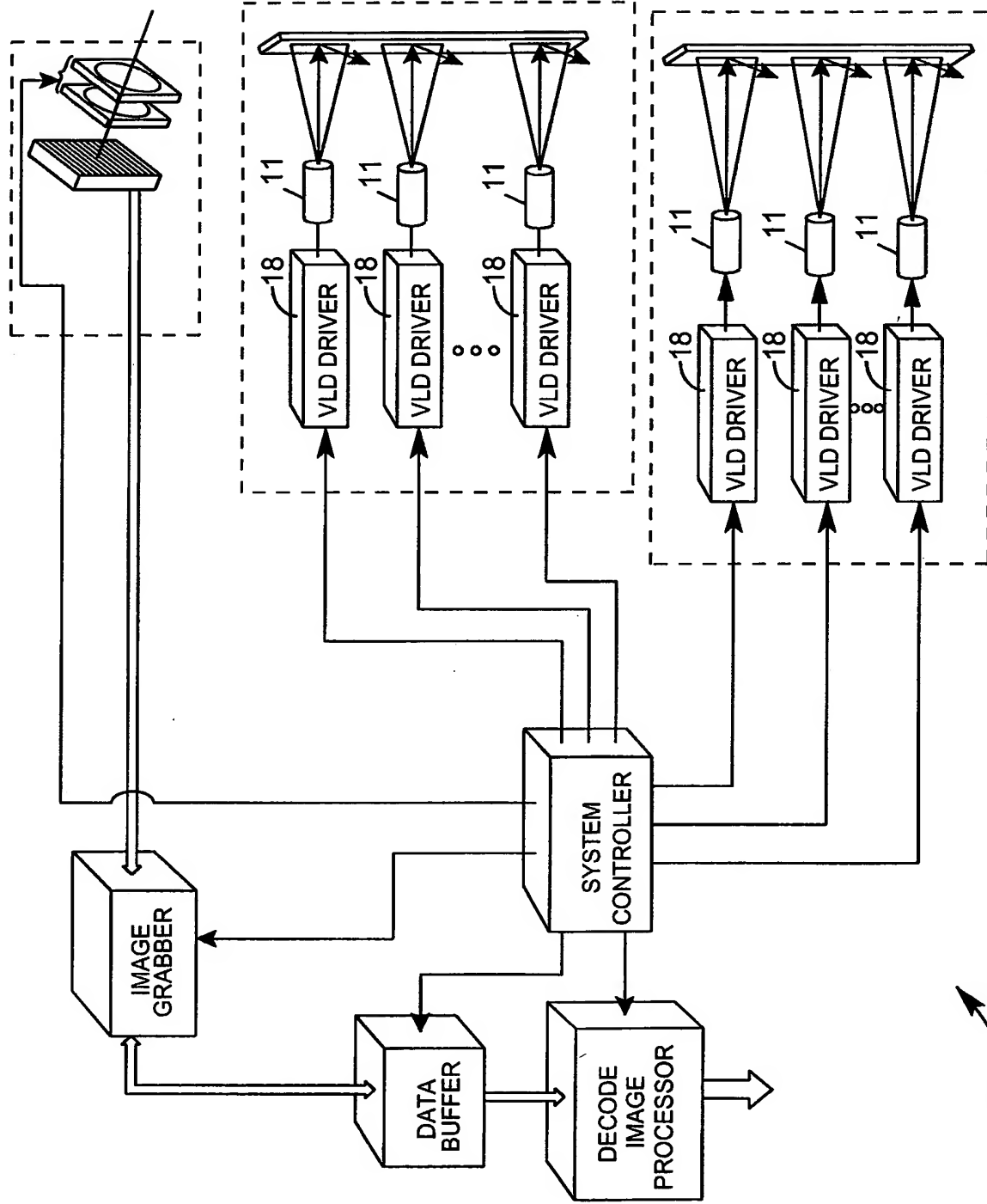


FIG. 3F2

50C

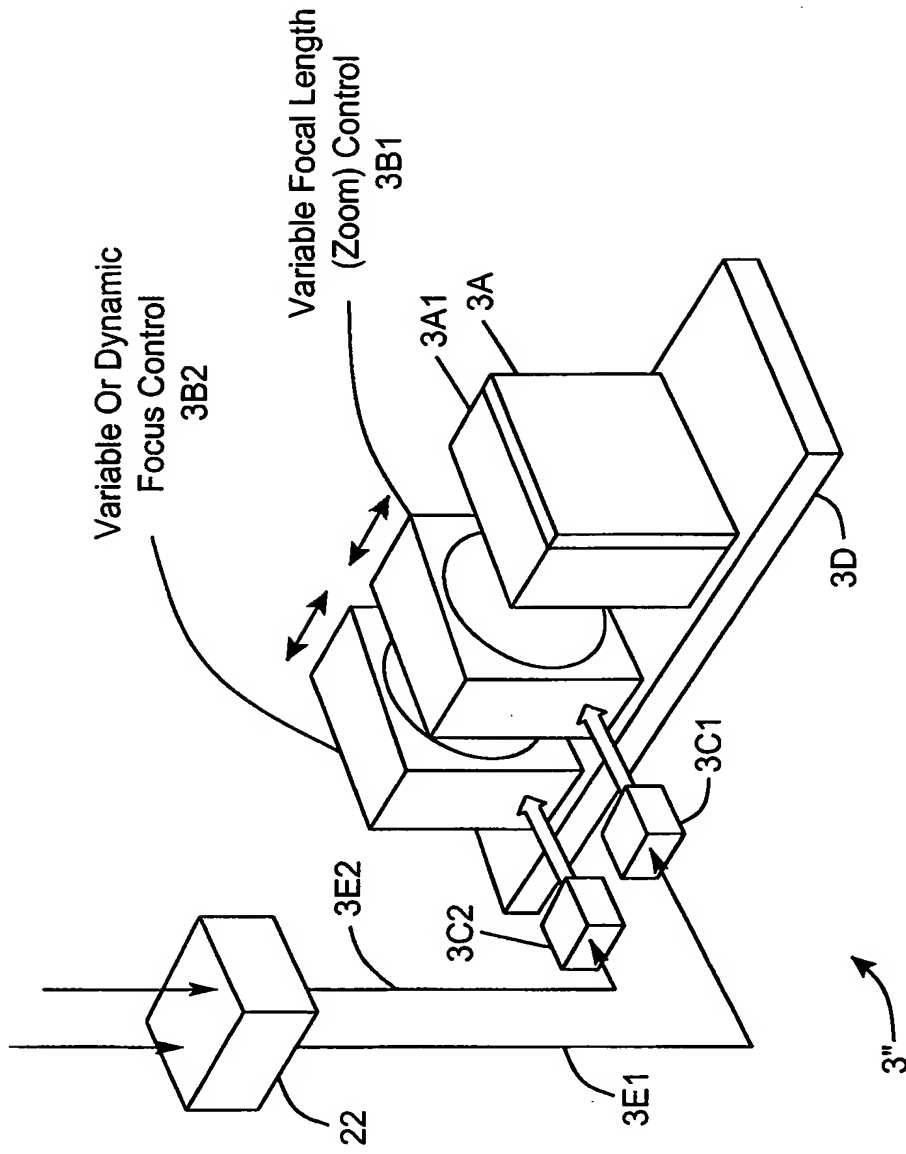


FIG. 3F3

206020" TSD6500T

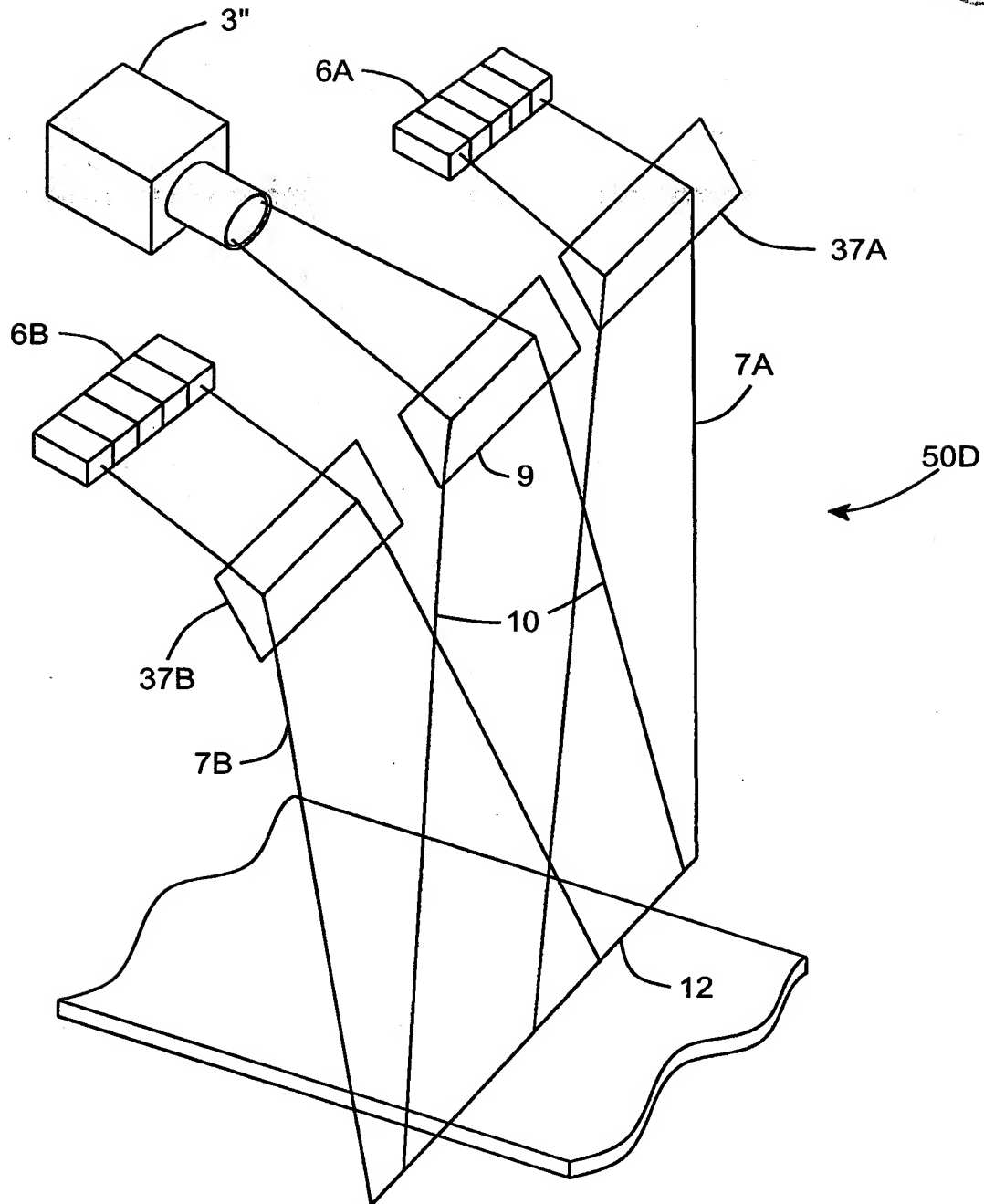


FIG. 3G1

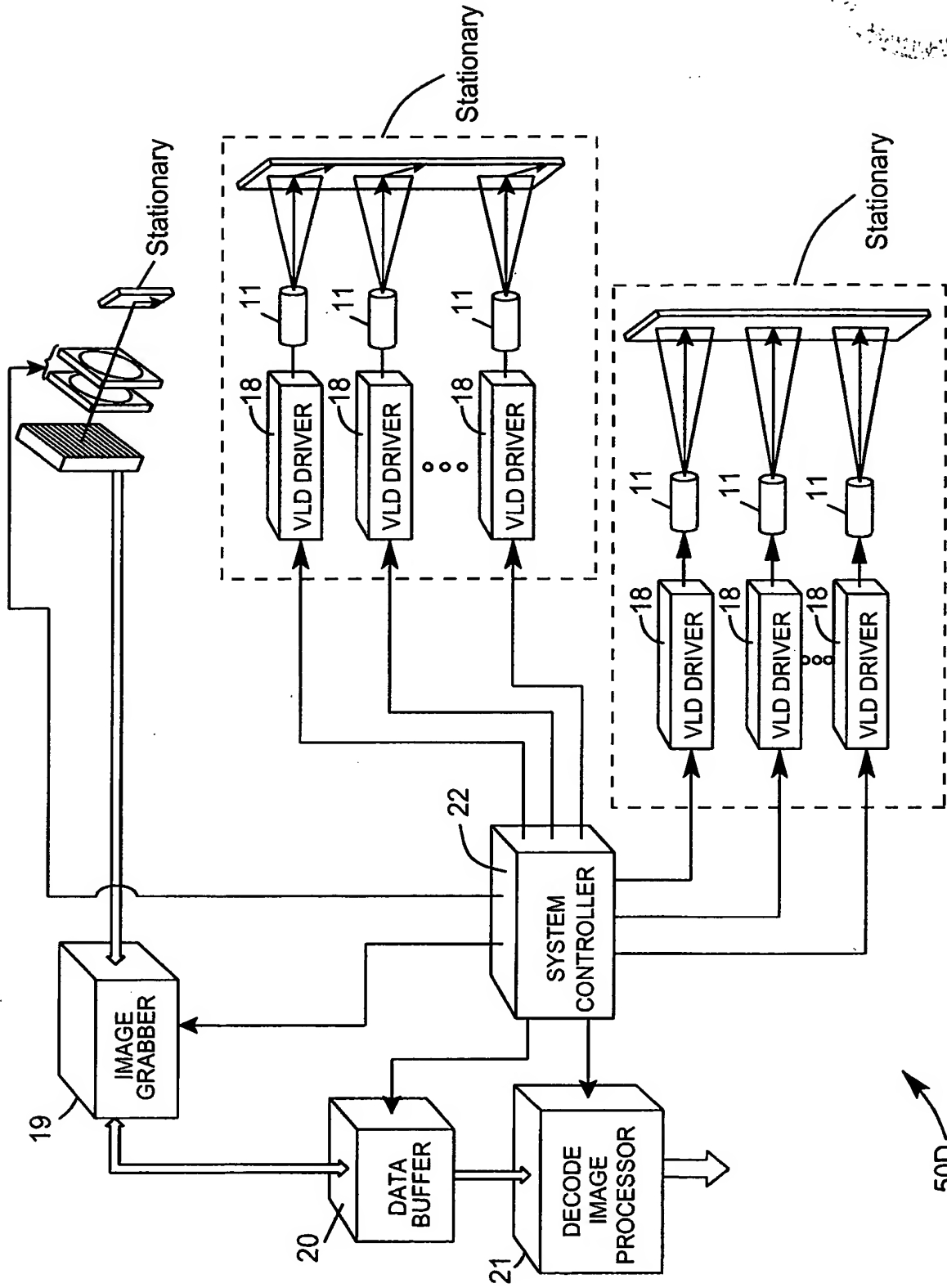


FIG. 3G2

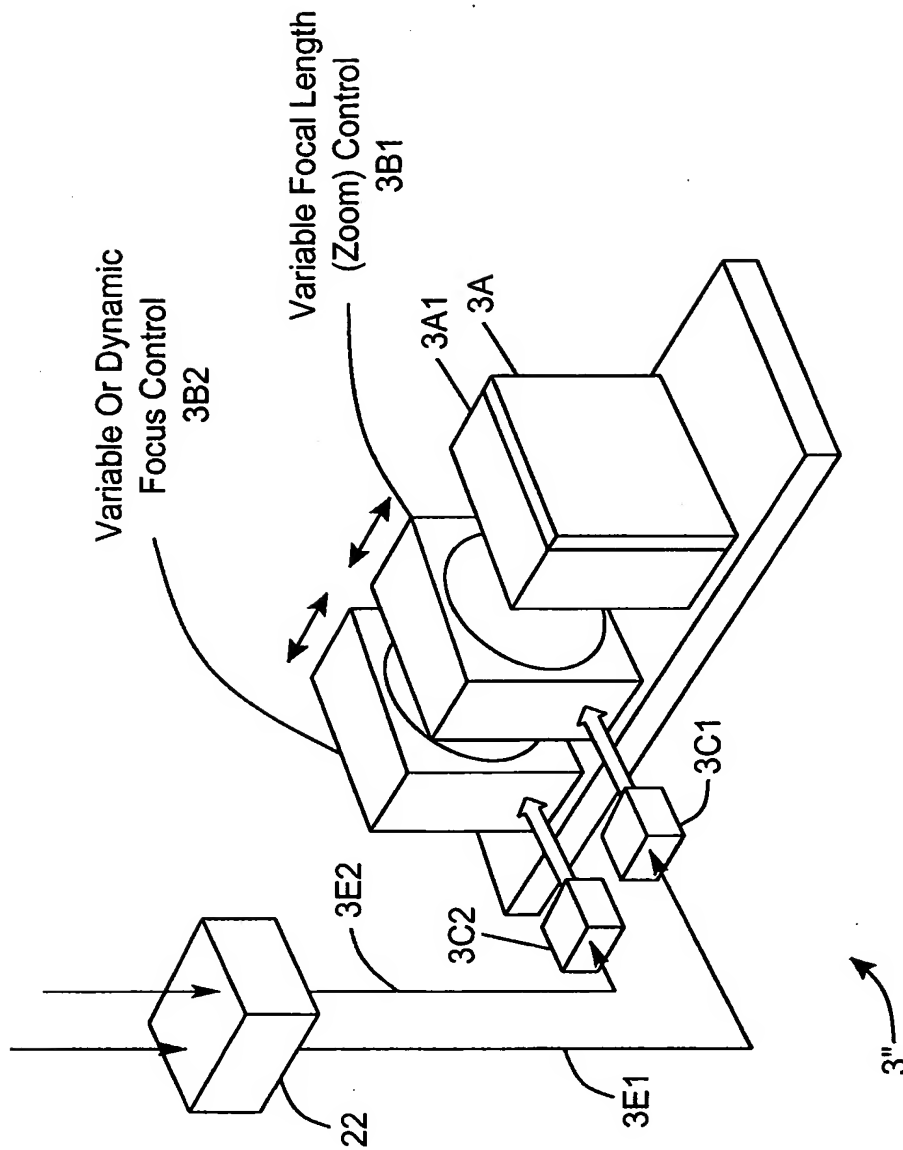
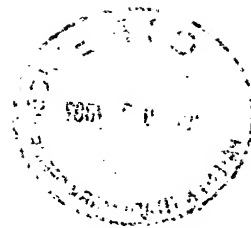


FIG. 3G3



10059051.070902



- Variable Focal Length Imaging Lens
- Variable Focal Distance

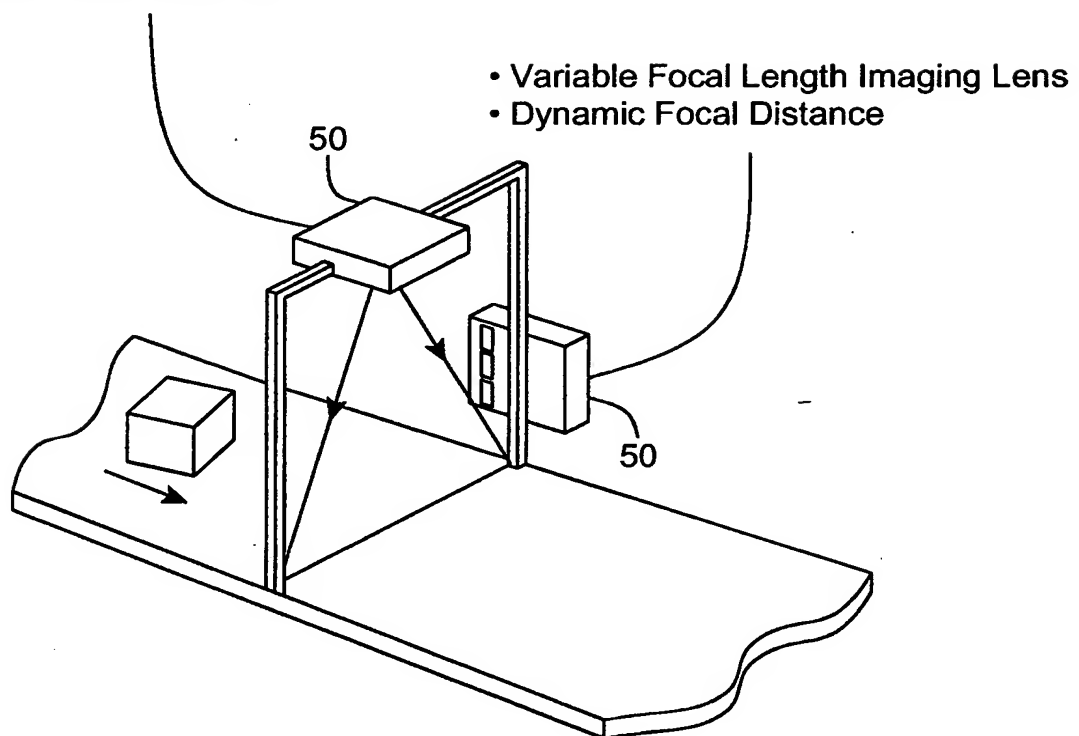


FIG. 3H

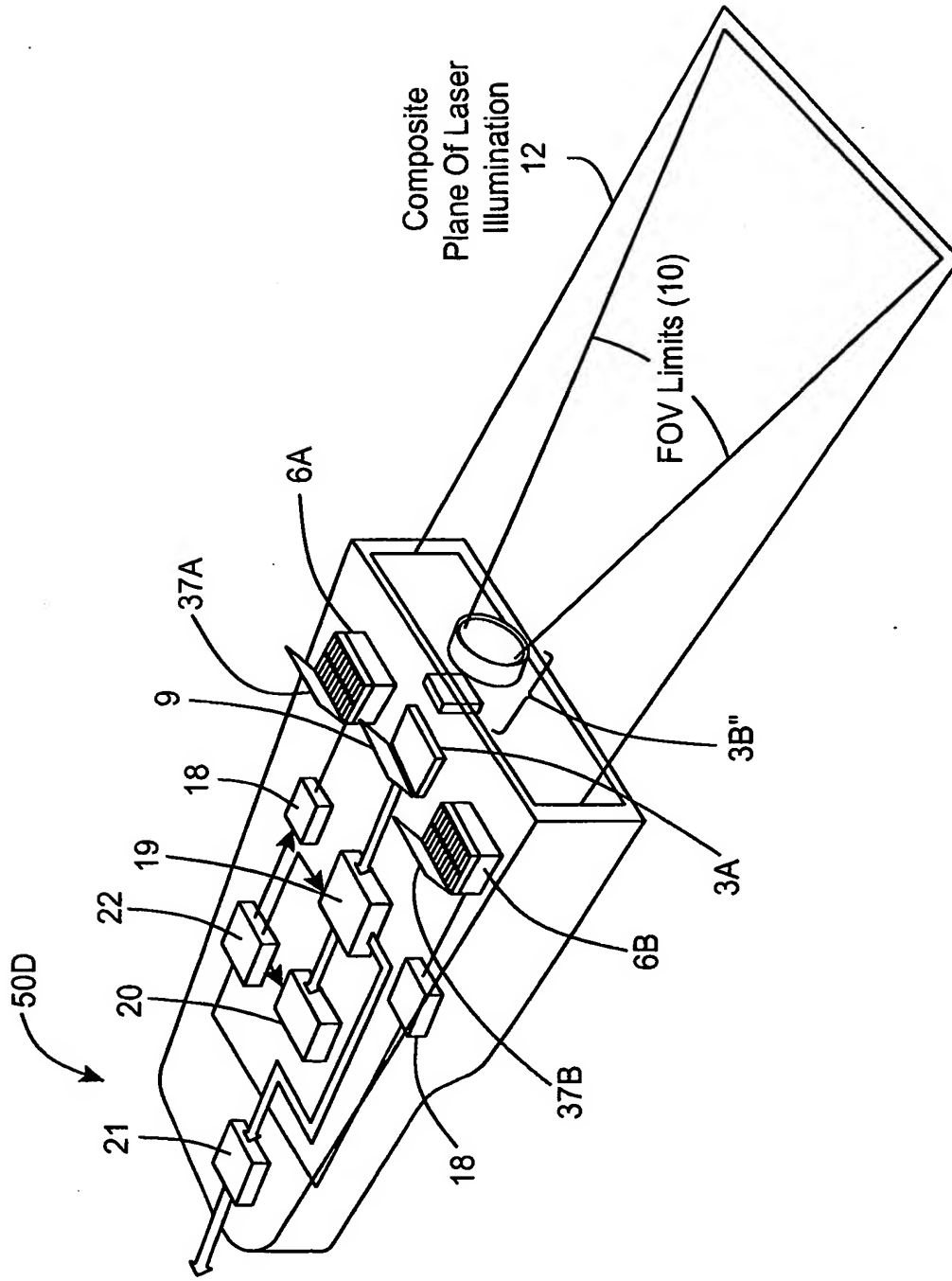
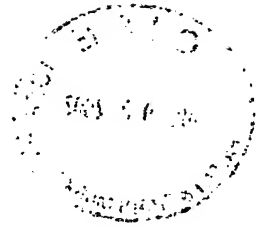


FIG. 3I

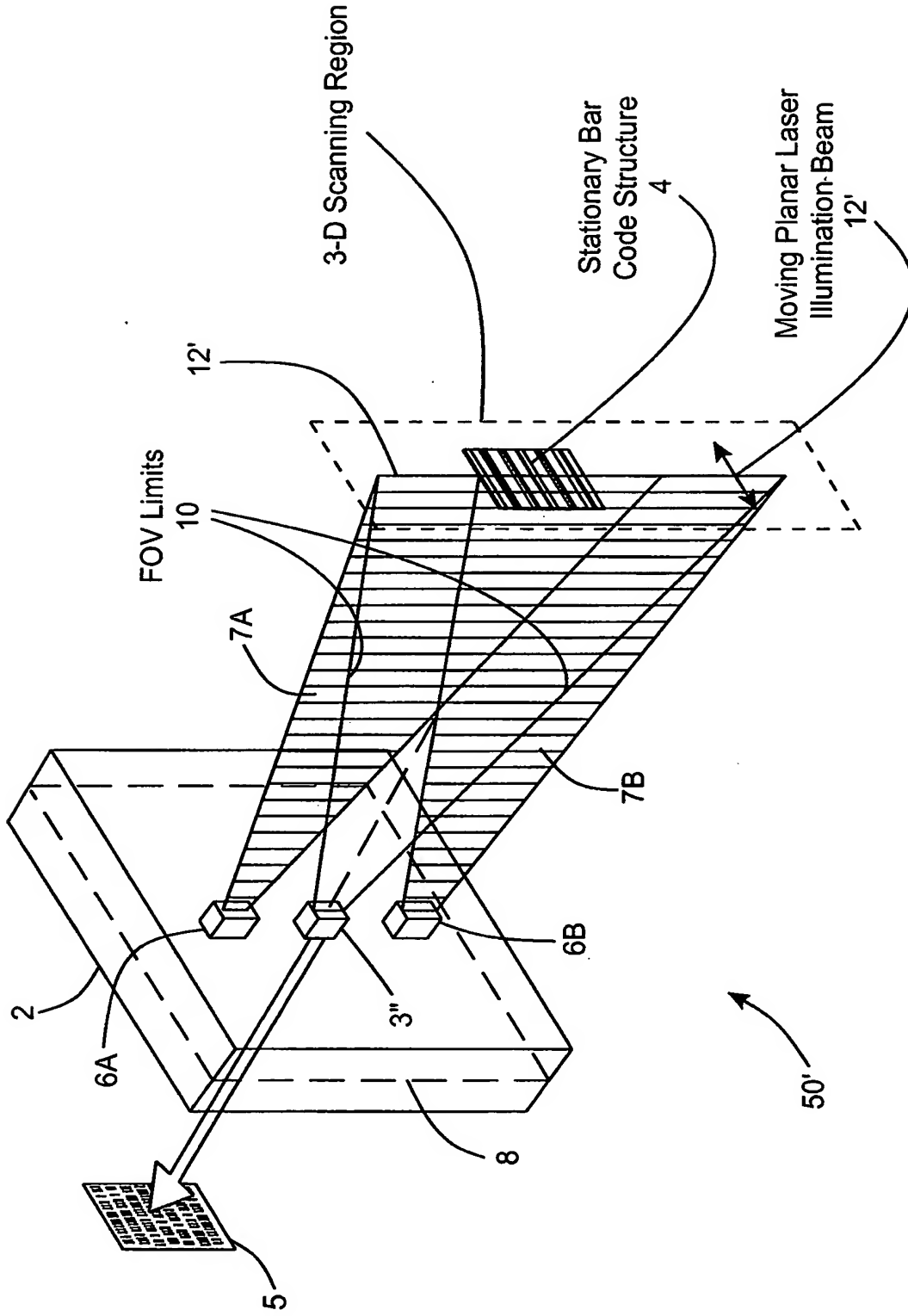


FIG. 3J1

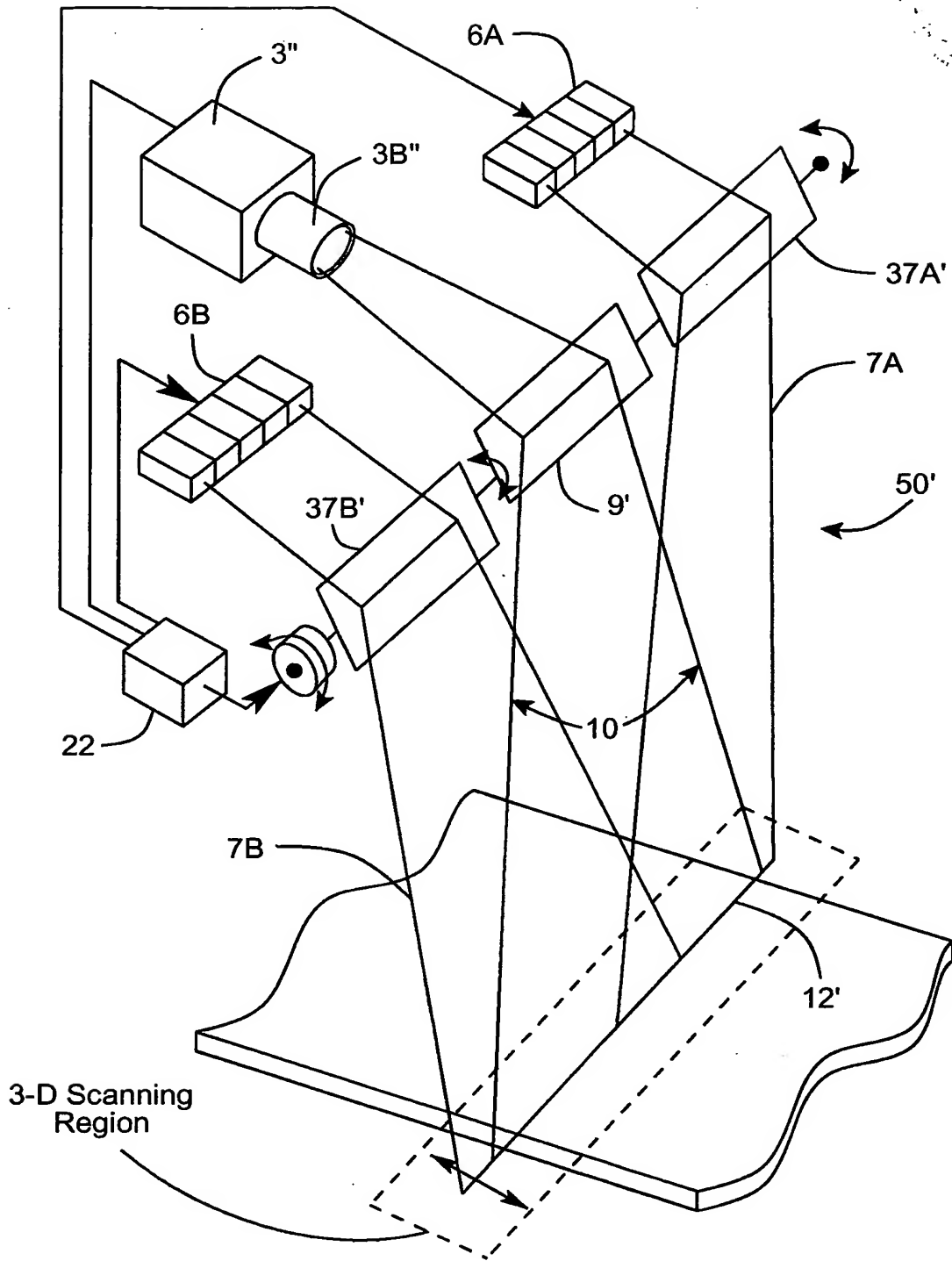


FIG. 3J2

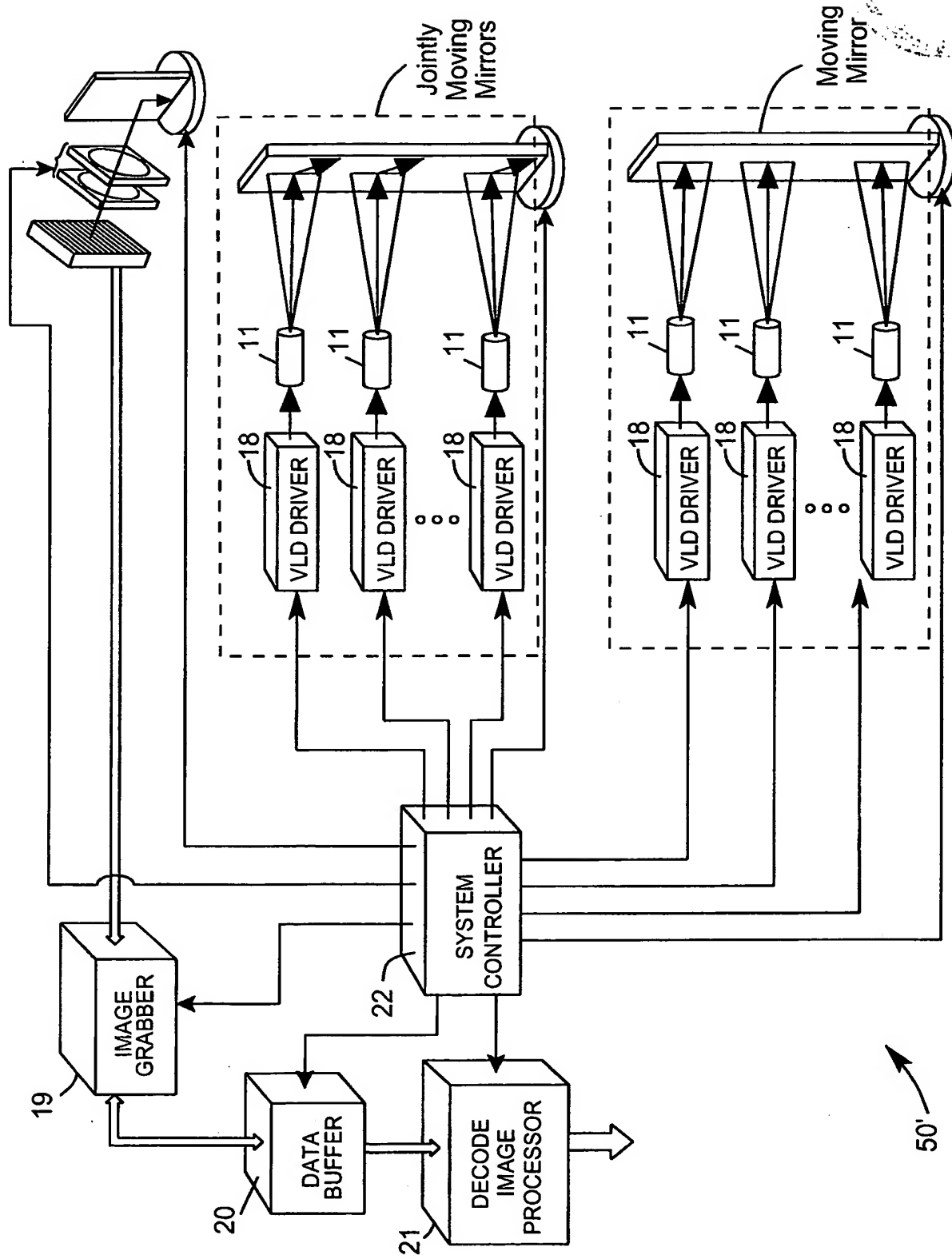


FIG. 3J3

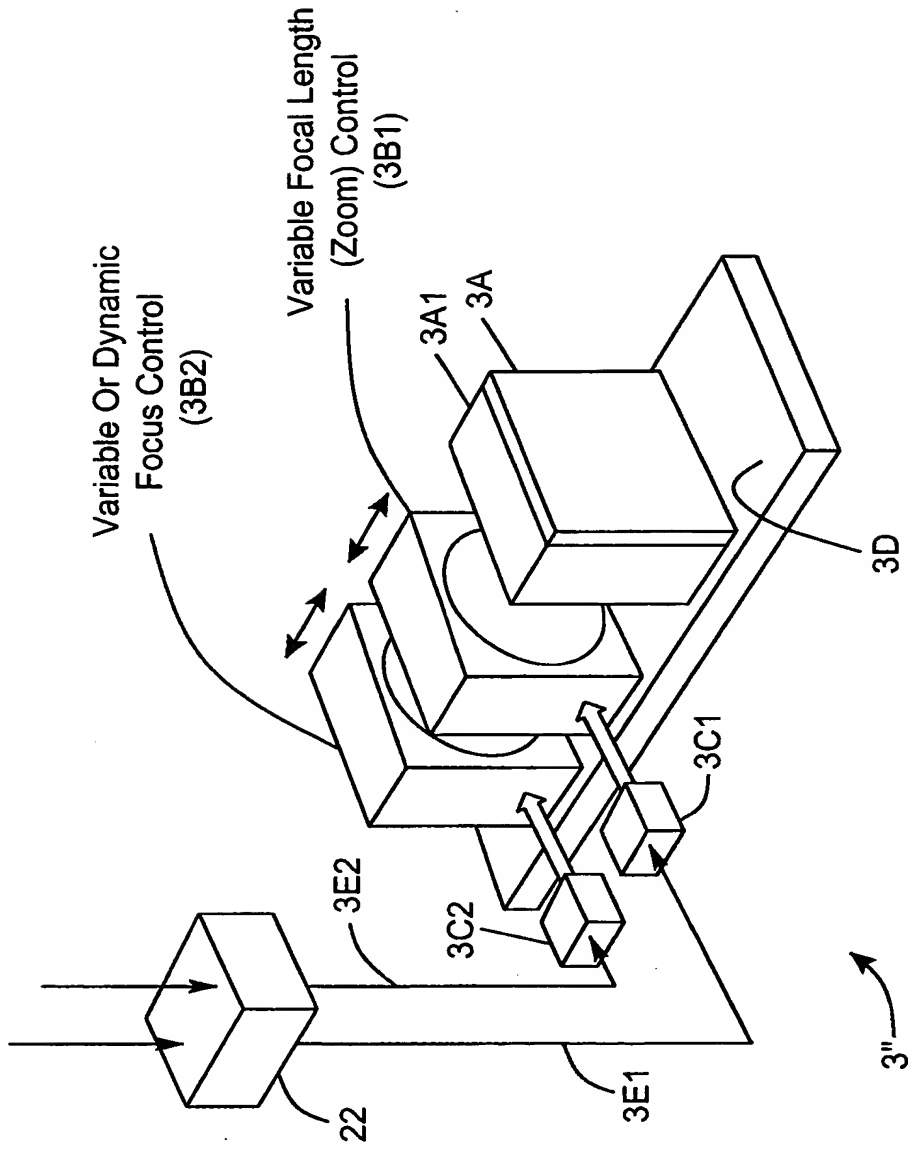
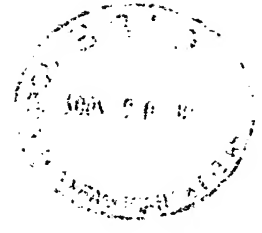
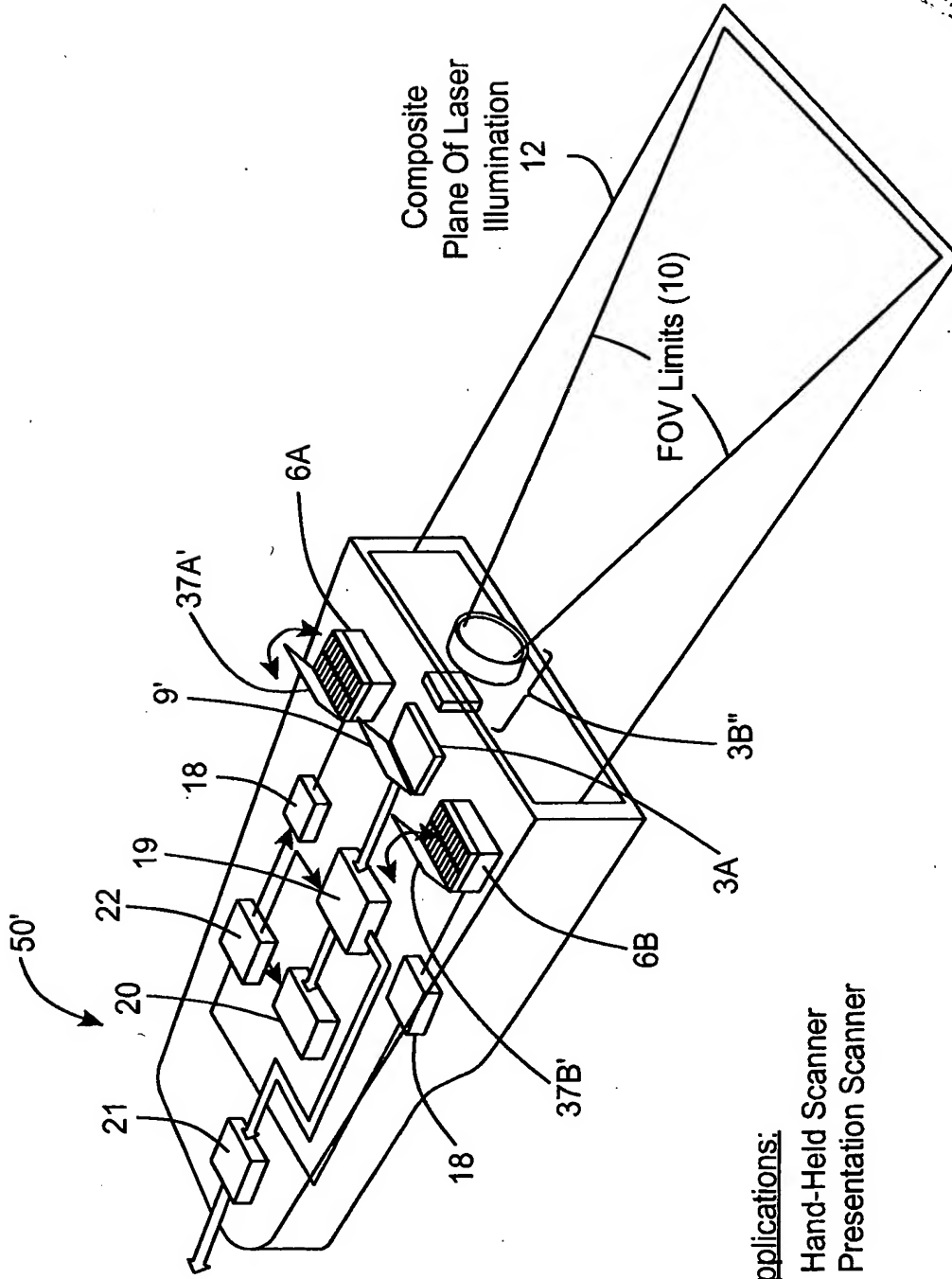


FIG. 3J4

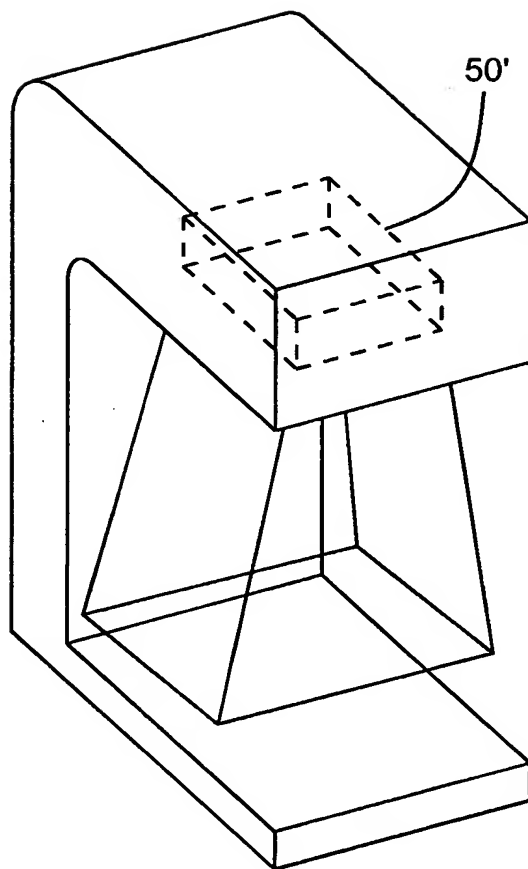
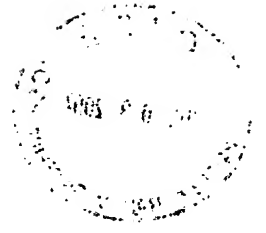


Applications:

- Hand-Held Scanner
- Presentation Scanner

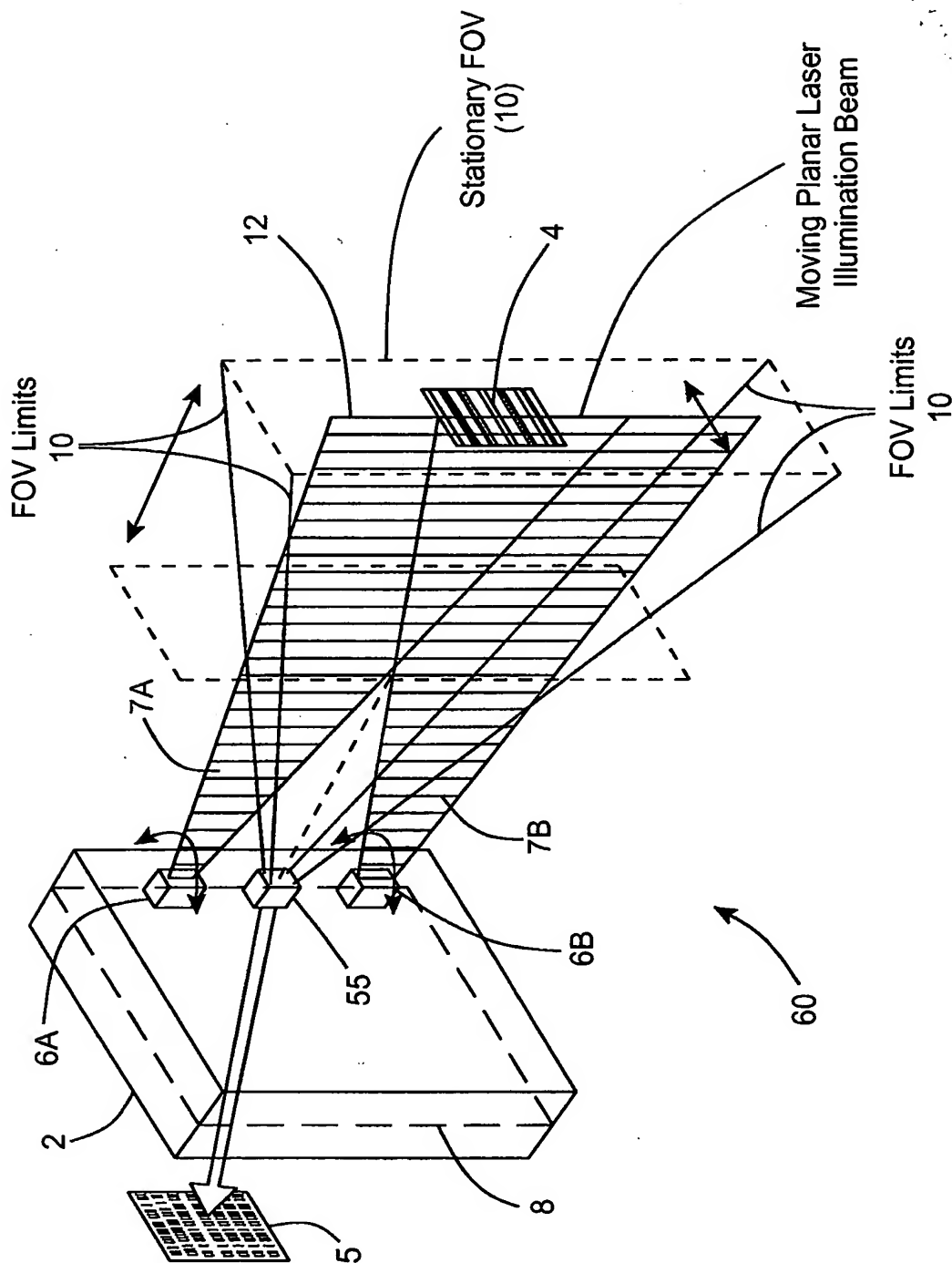
FIG. 3J5

206070 T506500T



2-D Hold-under Scanner

FIG. 3J6



206070" T506500T

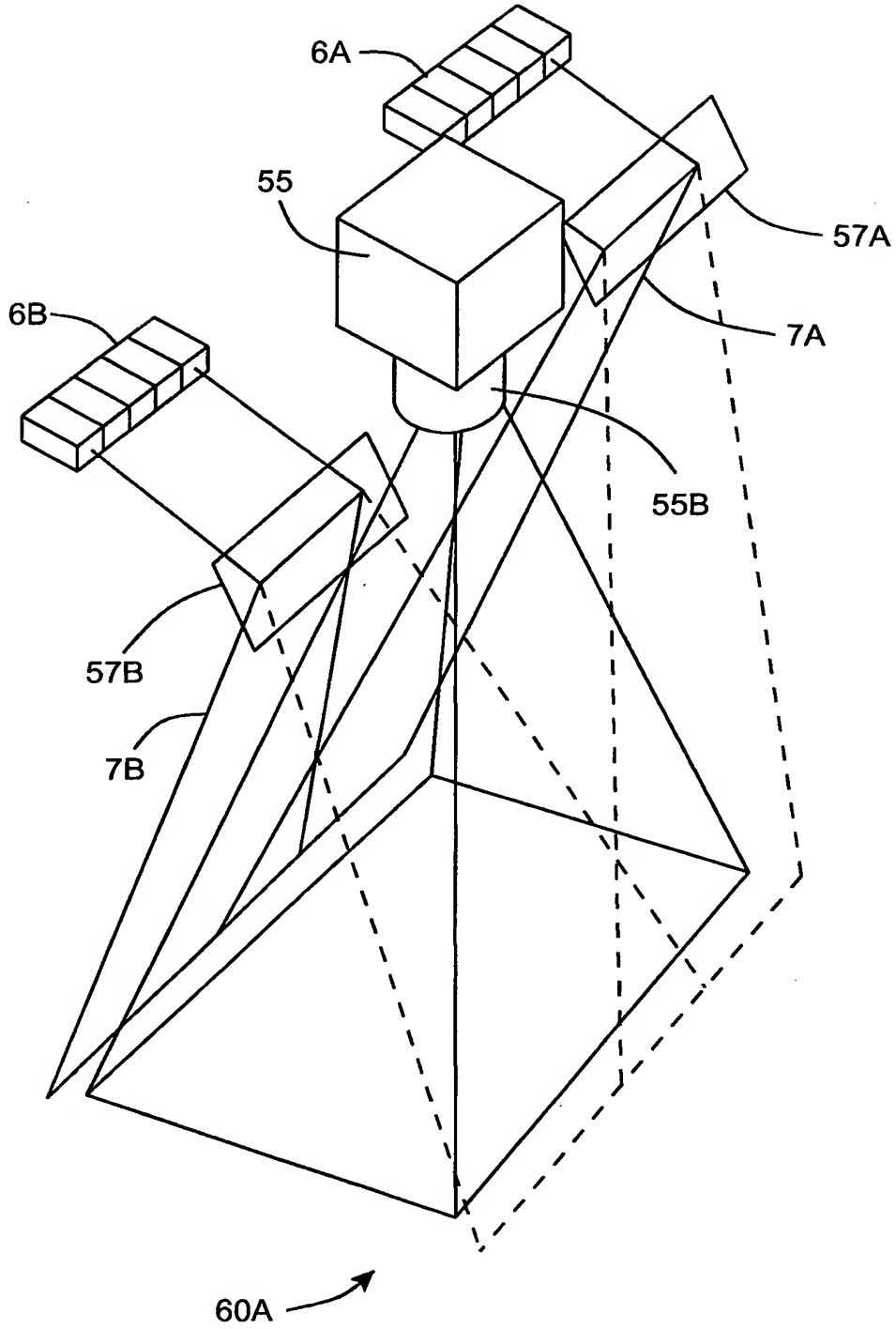
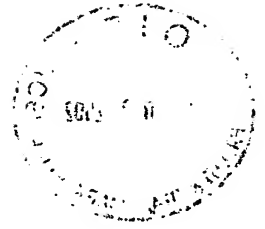


FIG. 4B1

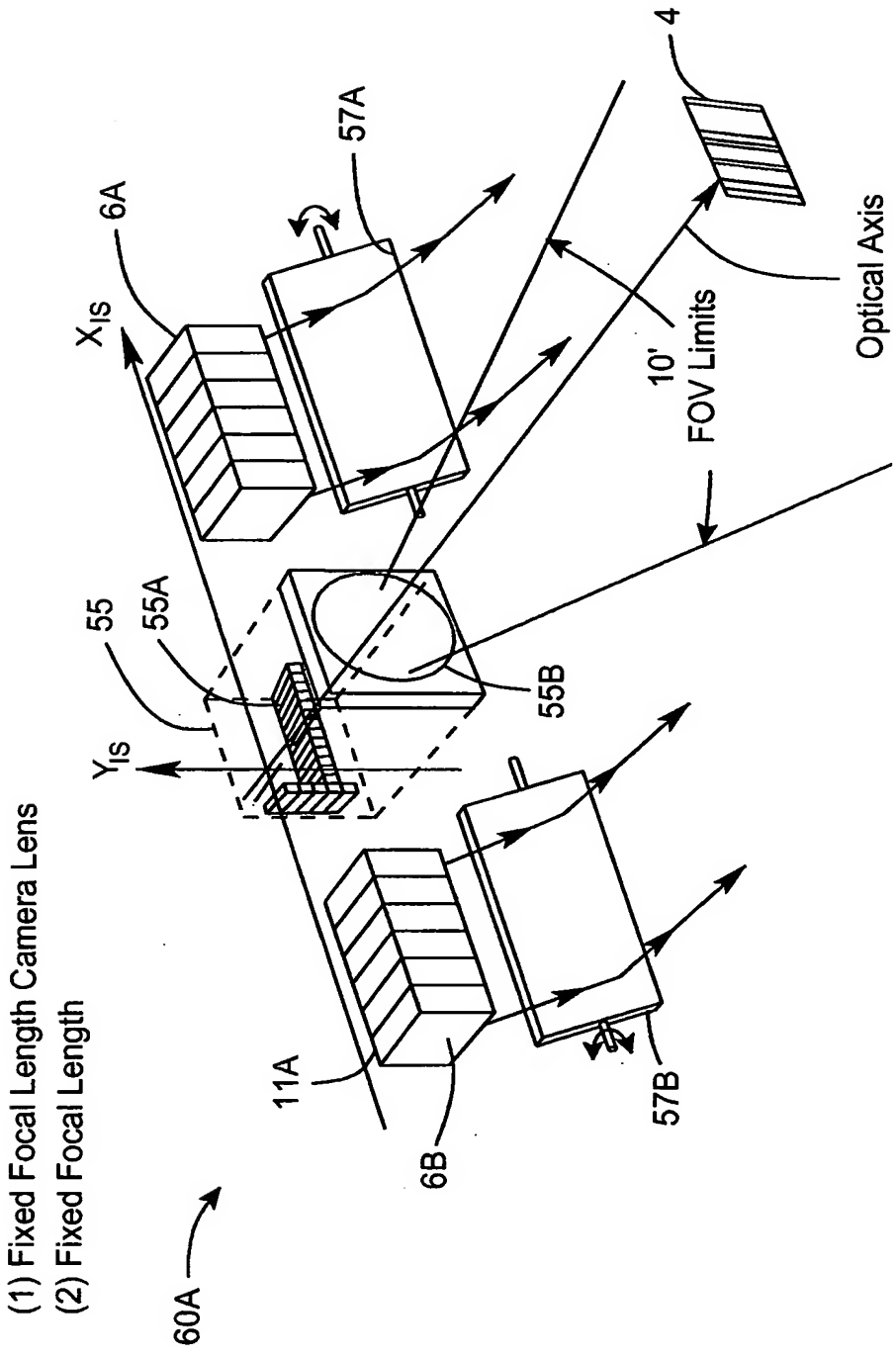
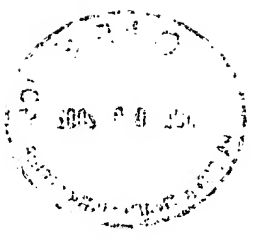
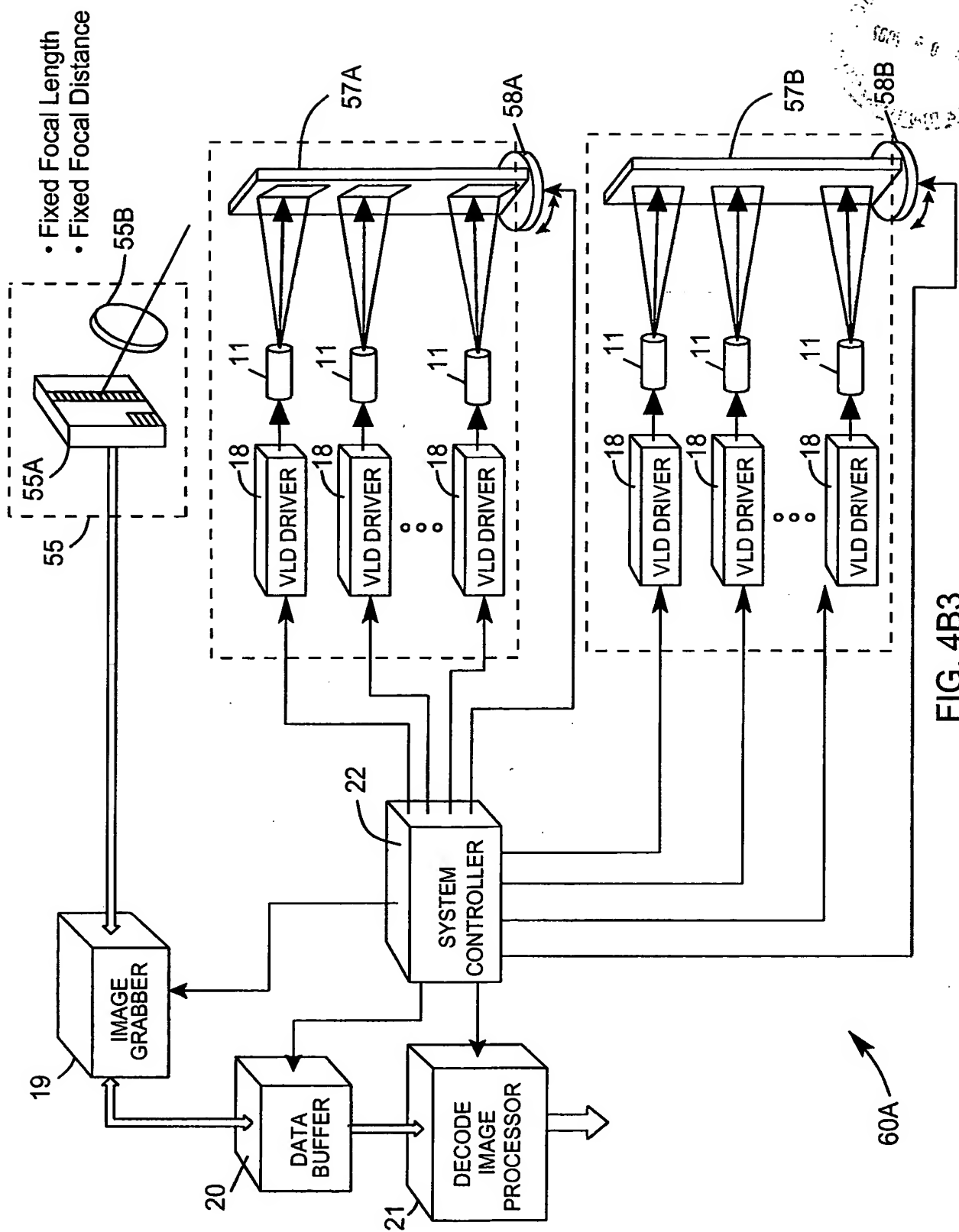


FIG. 4B2



10059051.070902

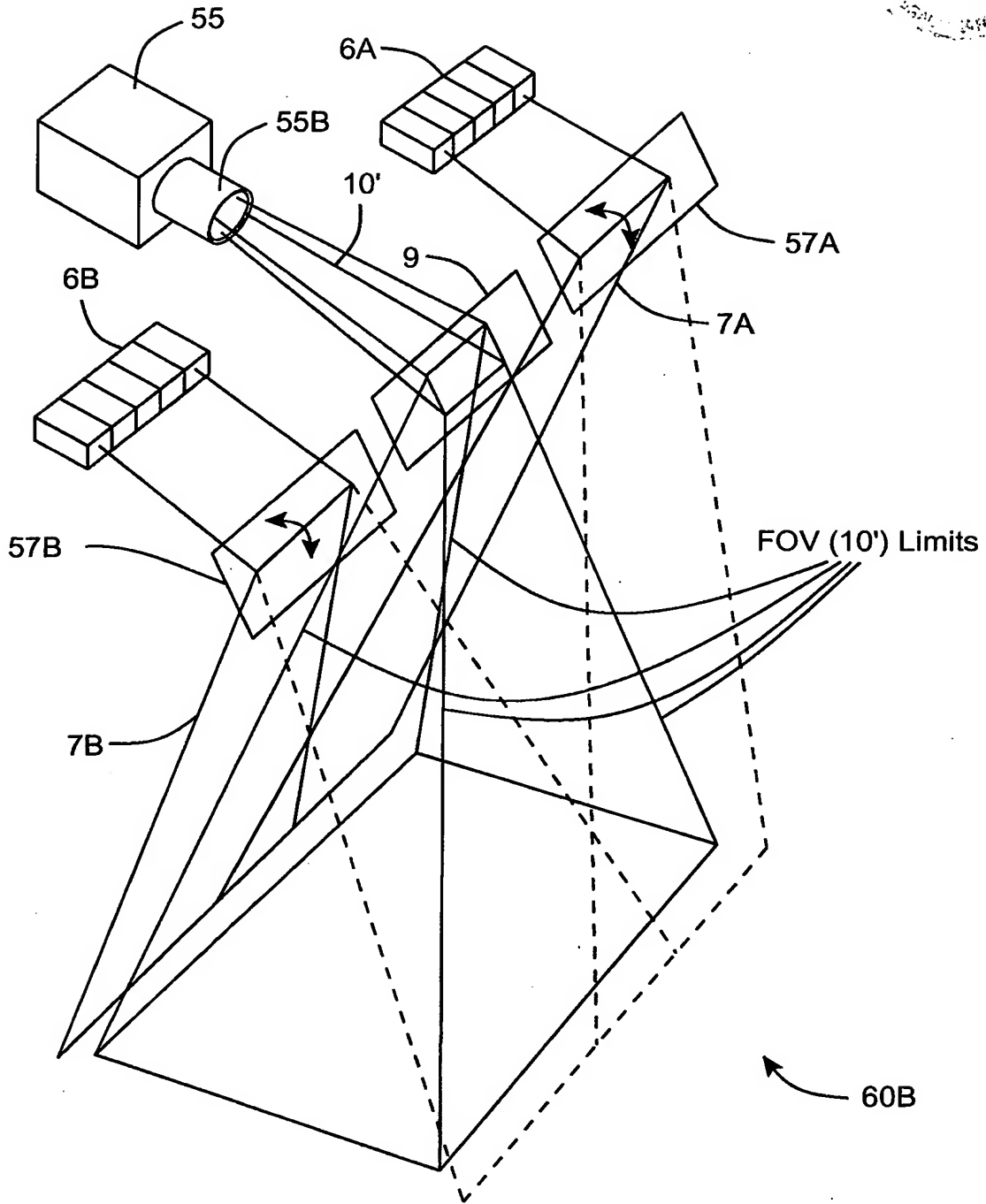
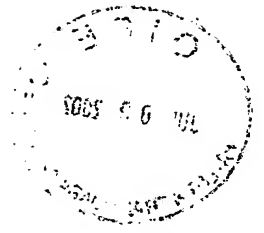


FIG. 4C1

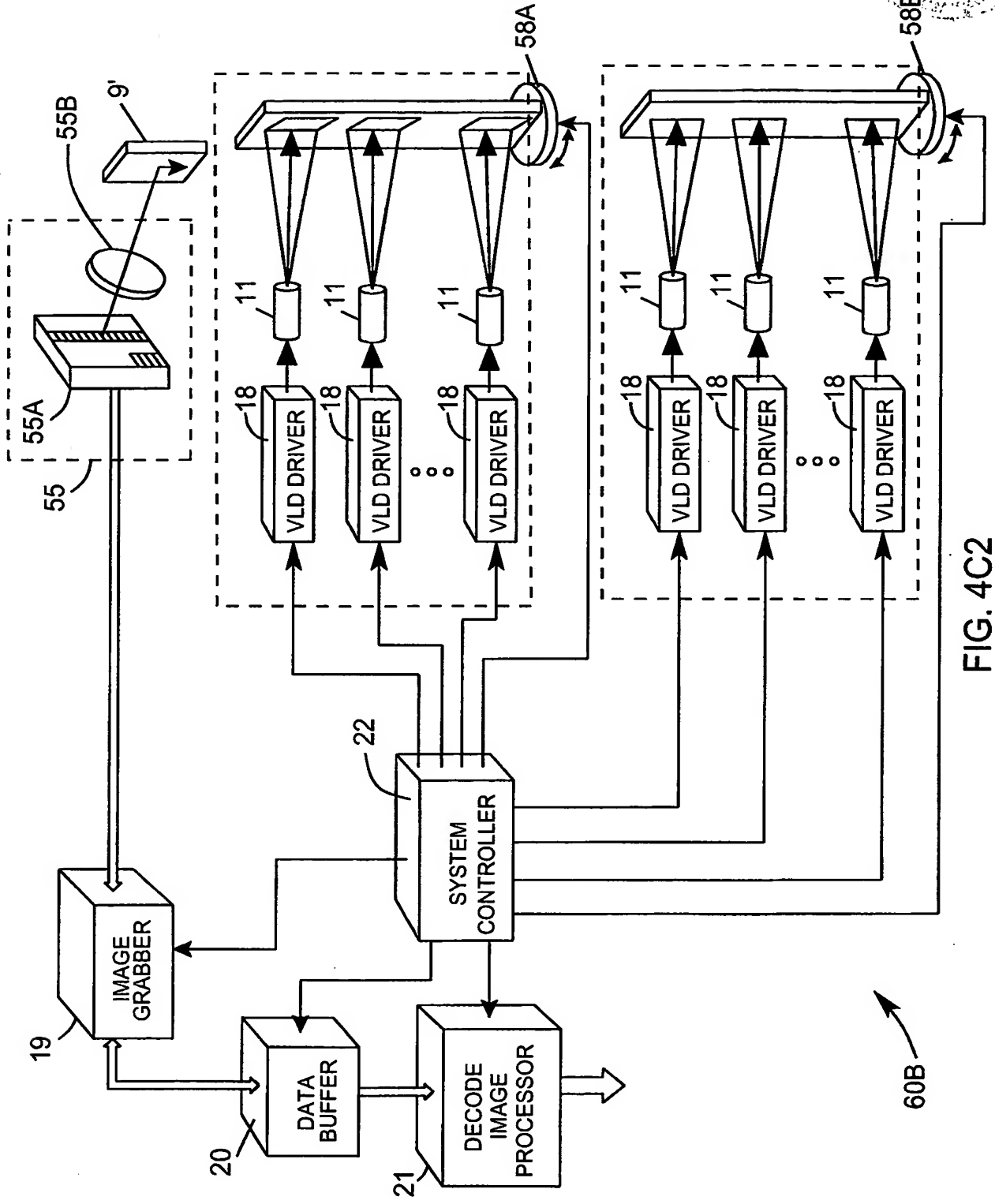
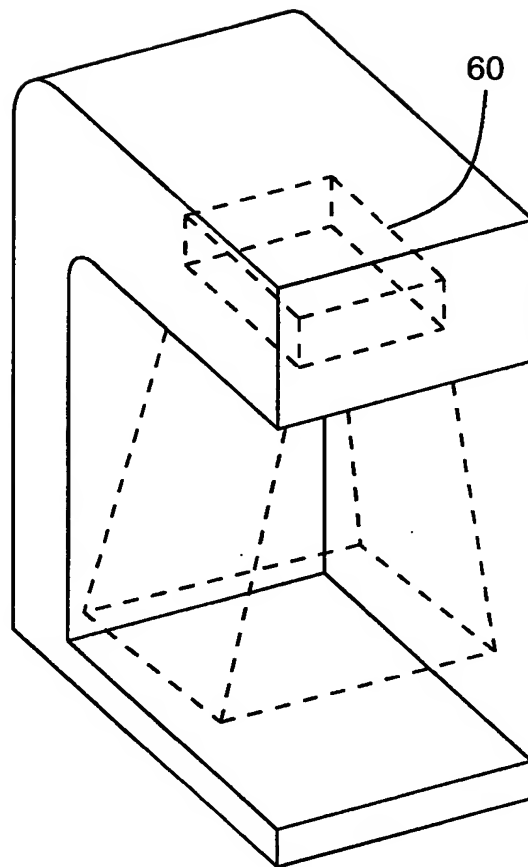
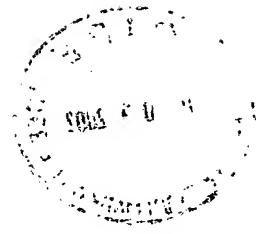


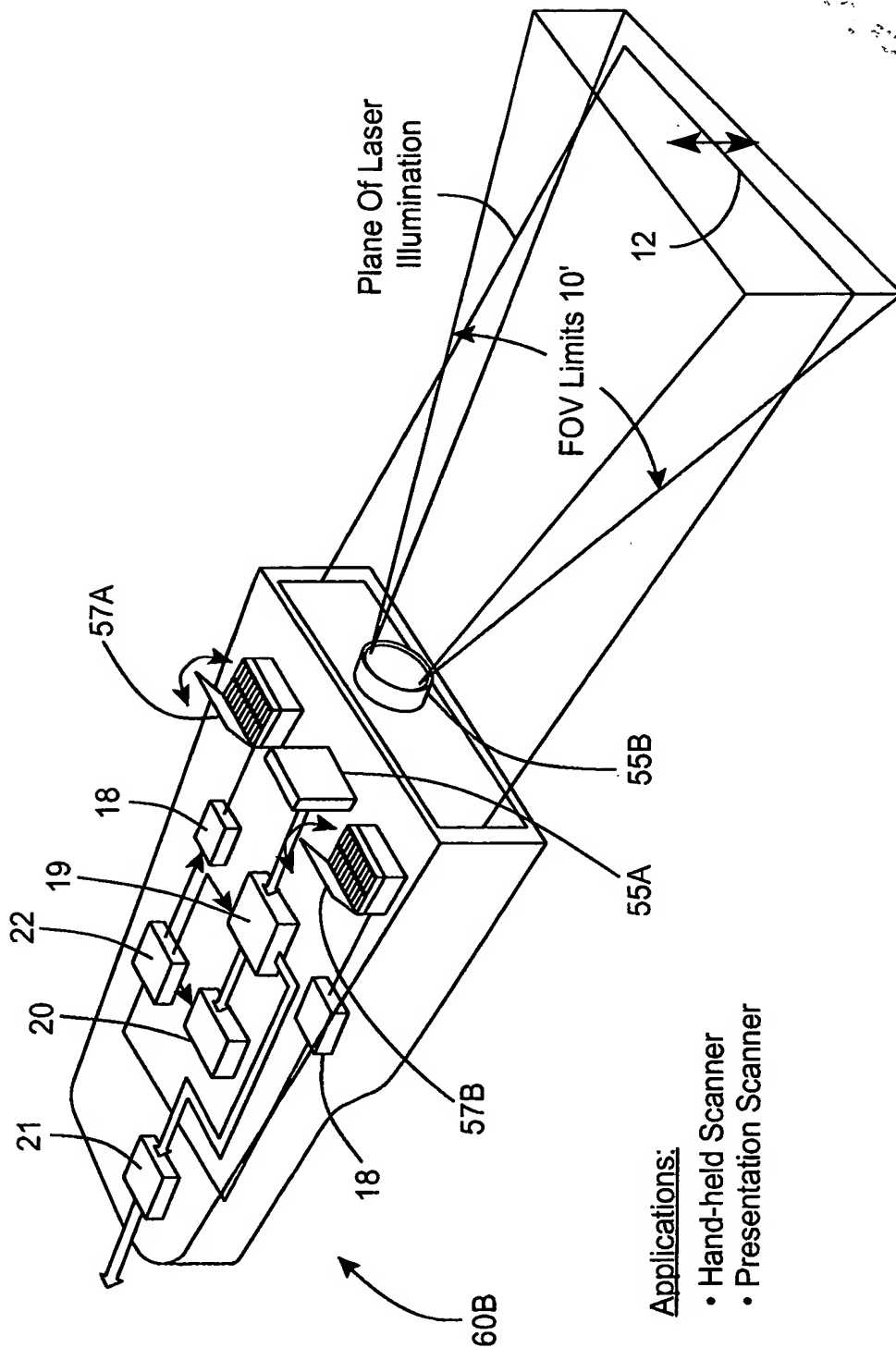
FIG. 4C2

10059051.070902



2-D Hold-under Scanner

FIG. 4D



Applications:

- Hand-held Scanner
- Presentation Scanner

FIG. 4E

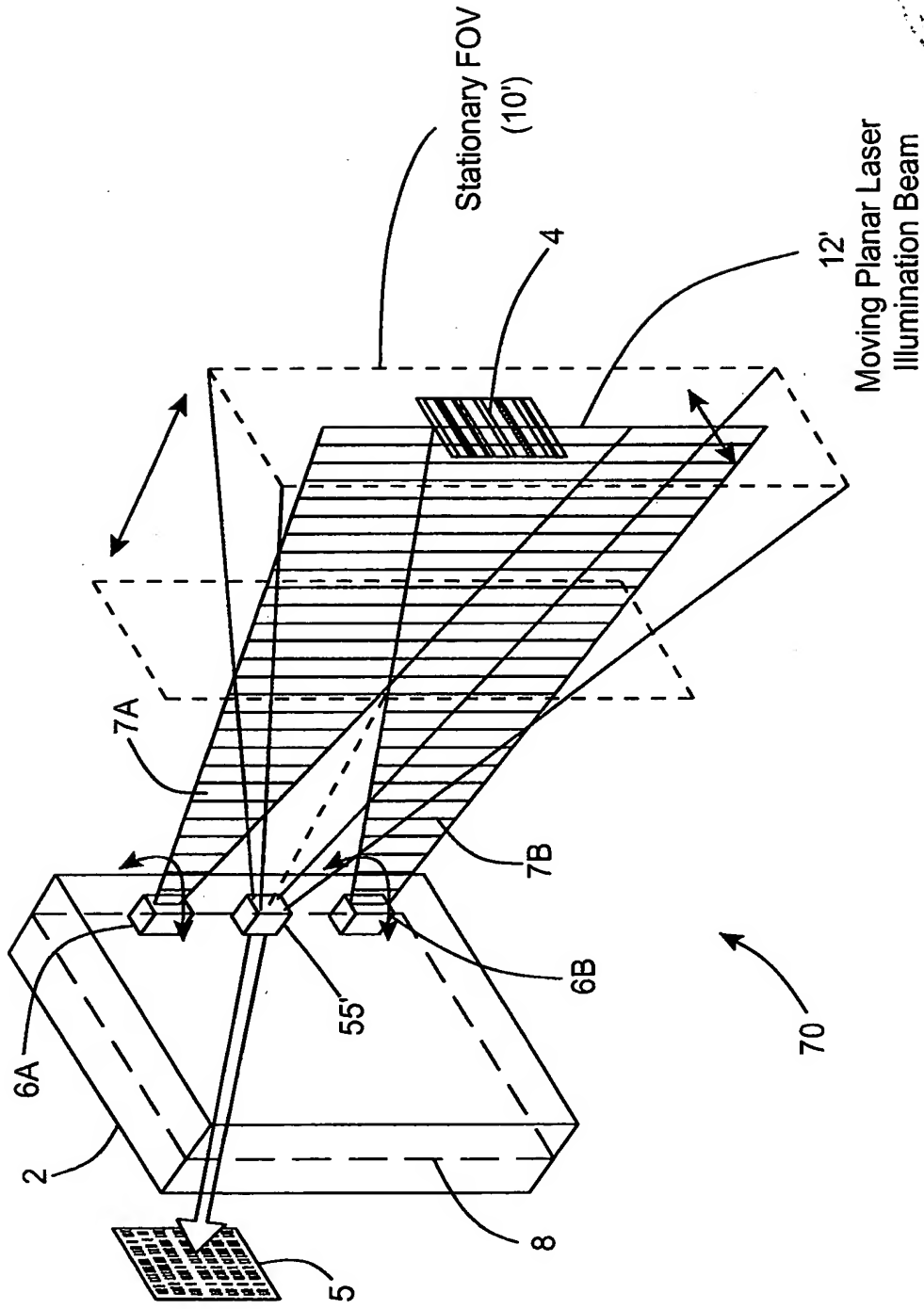


FIG. 5A



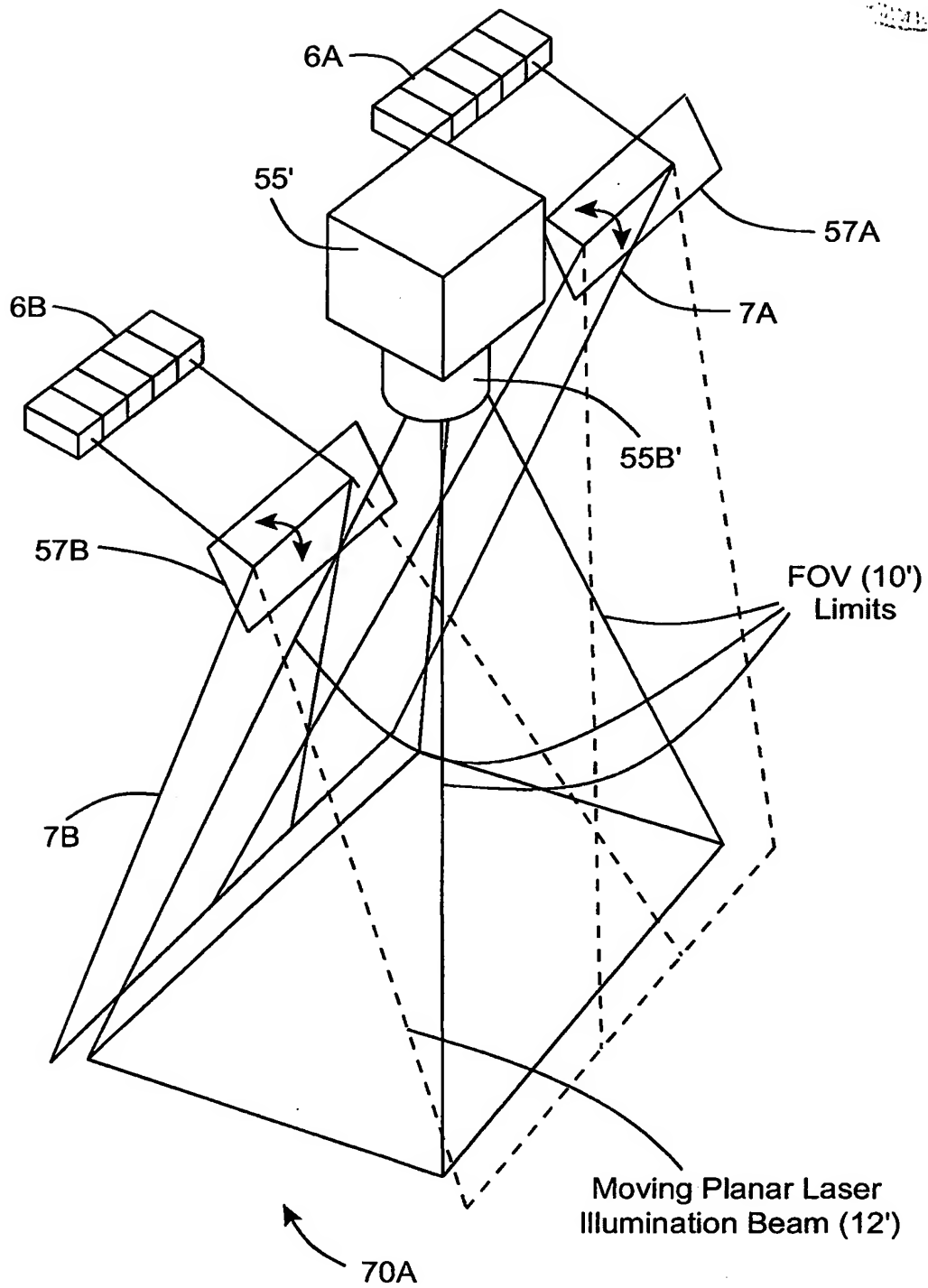


FIG. 5B1

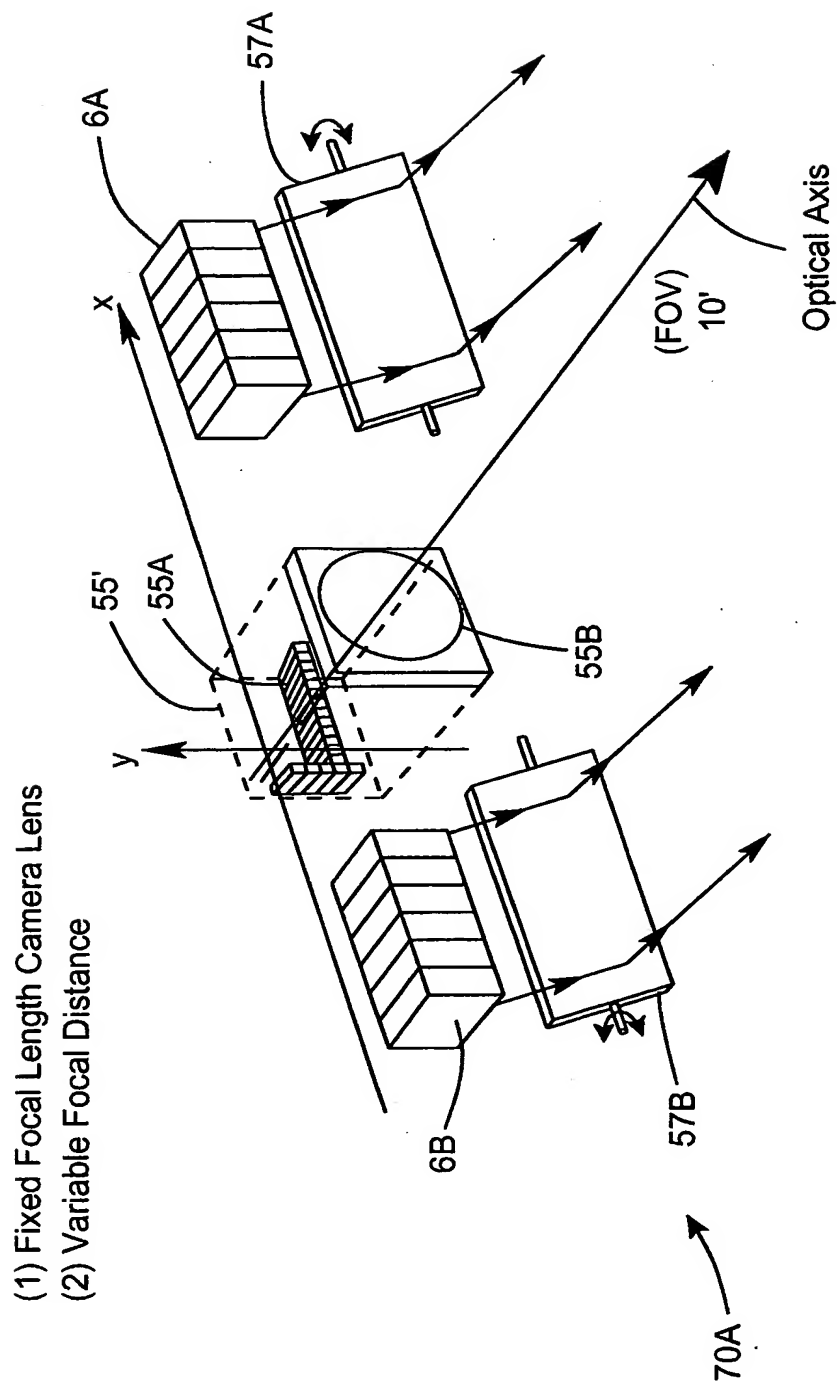


FIG. 5B2



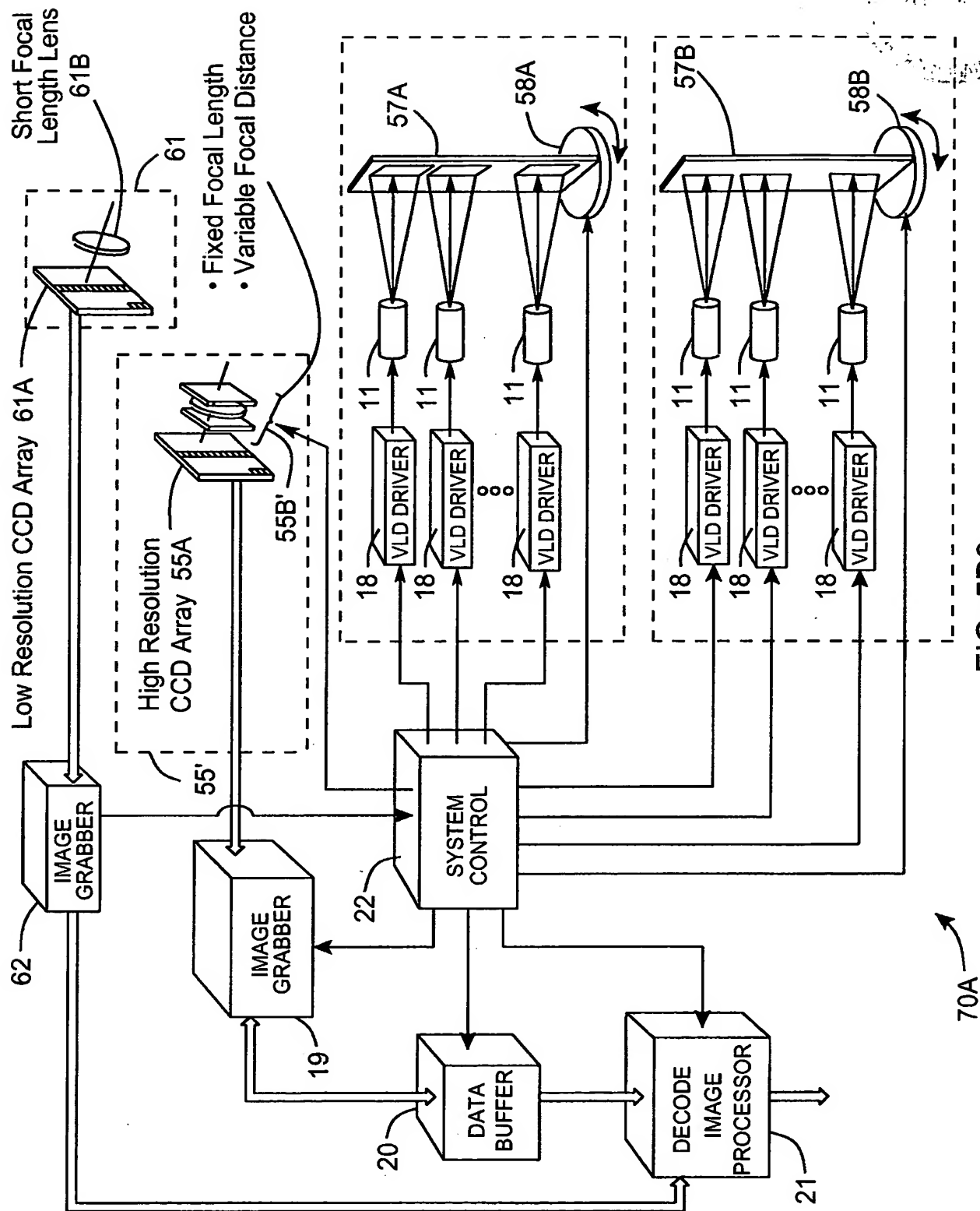


FIG. 5B3

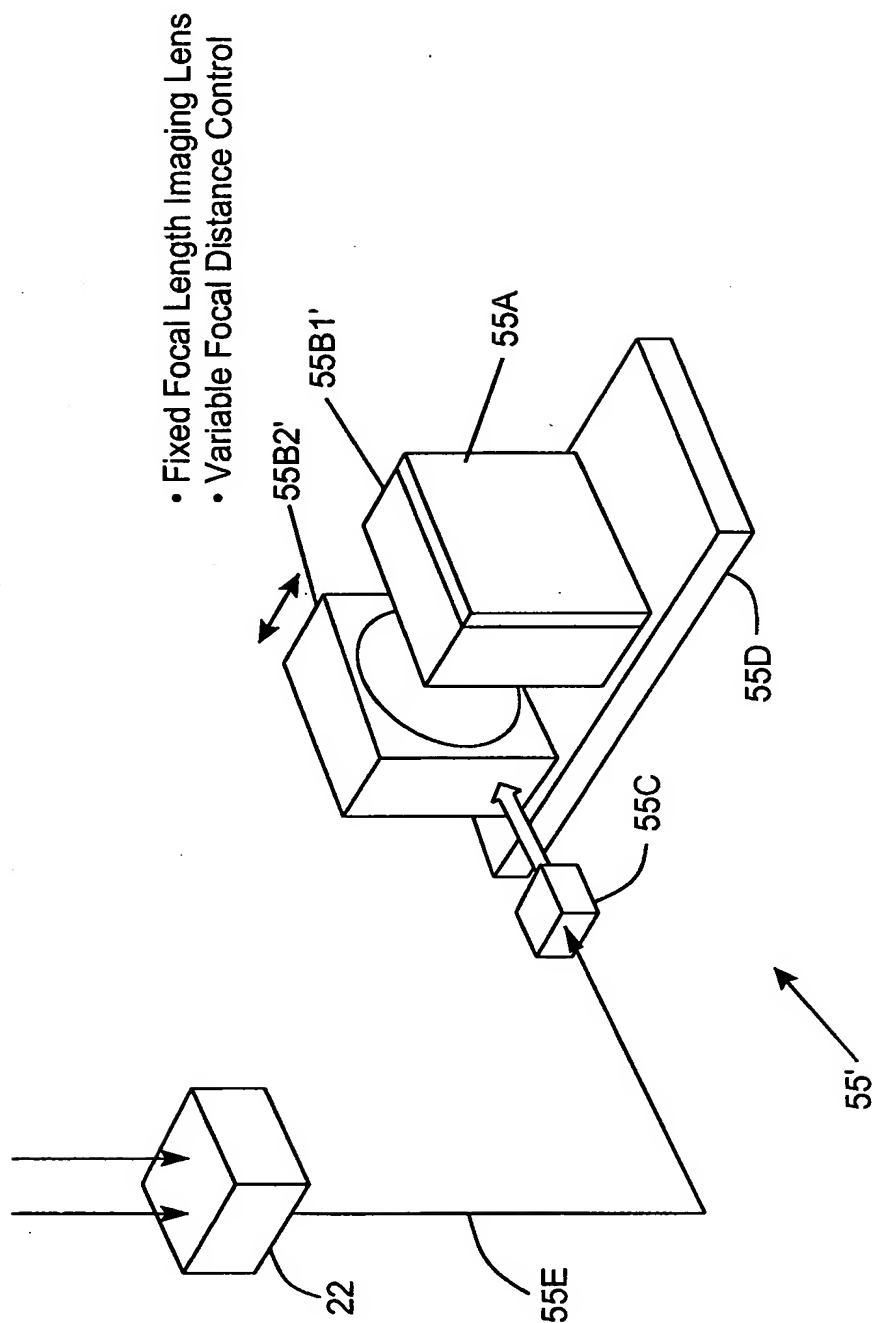


FIG. 5B4



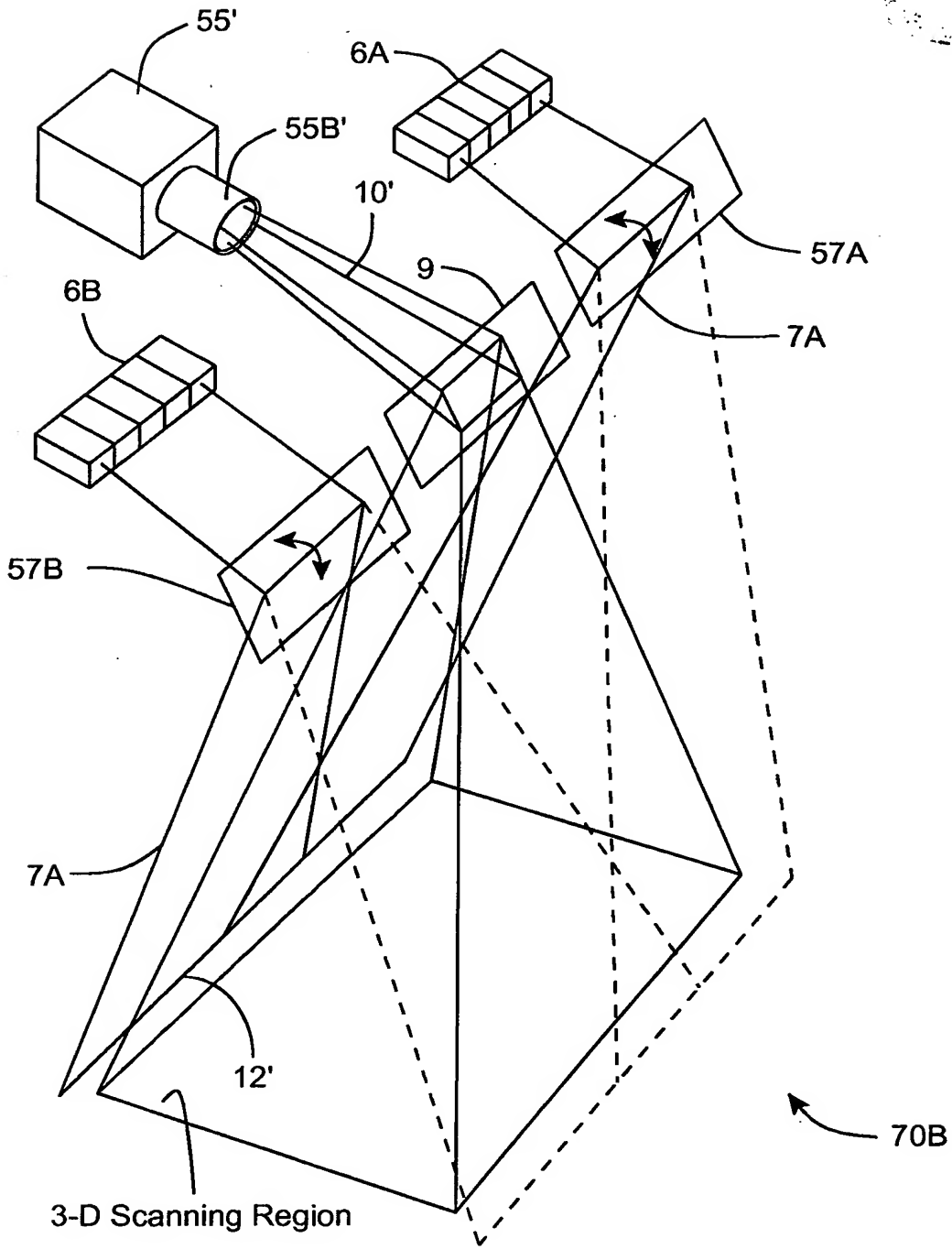
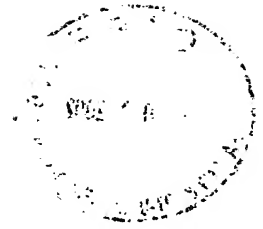


FIG. 5C1

- (1) Variable Focal Length Camera Lens
- (2) Fixed Focal Distance

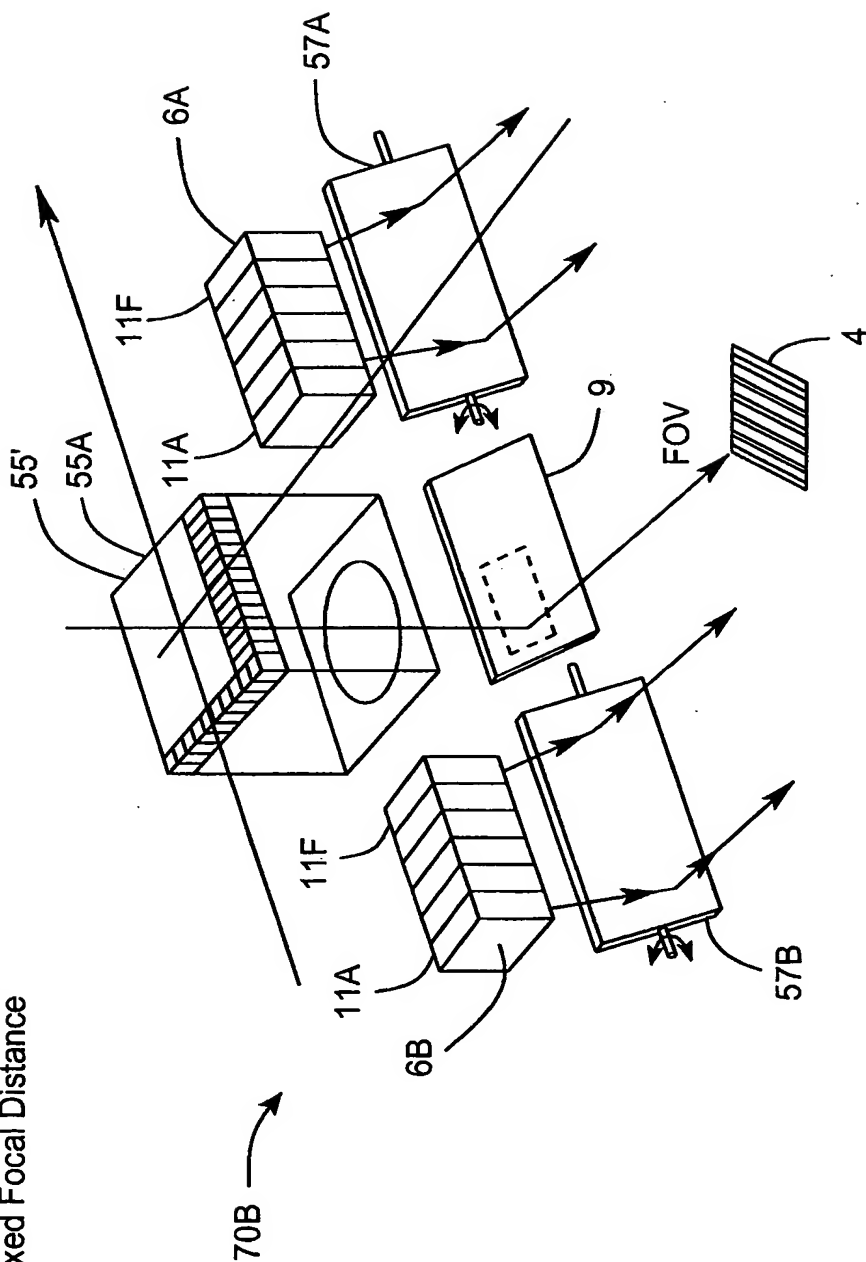


FIG. 5C2

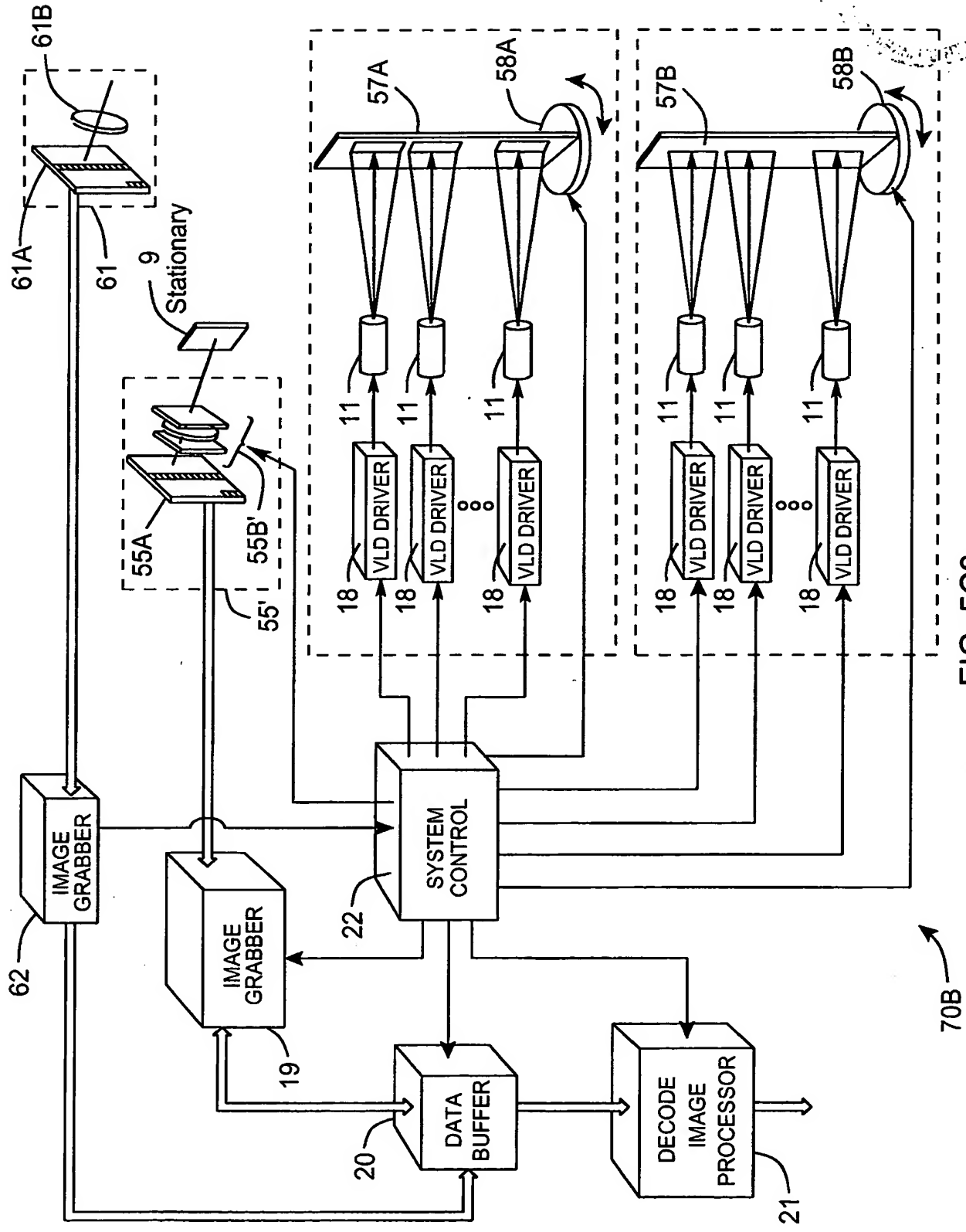


FIG. 5C3

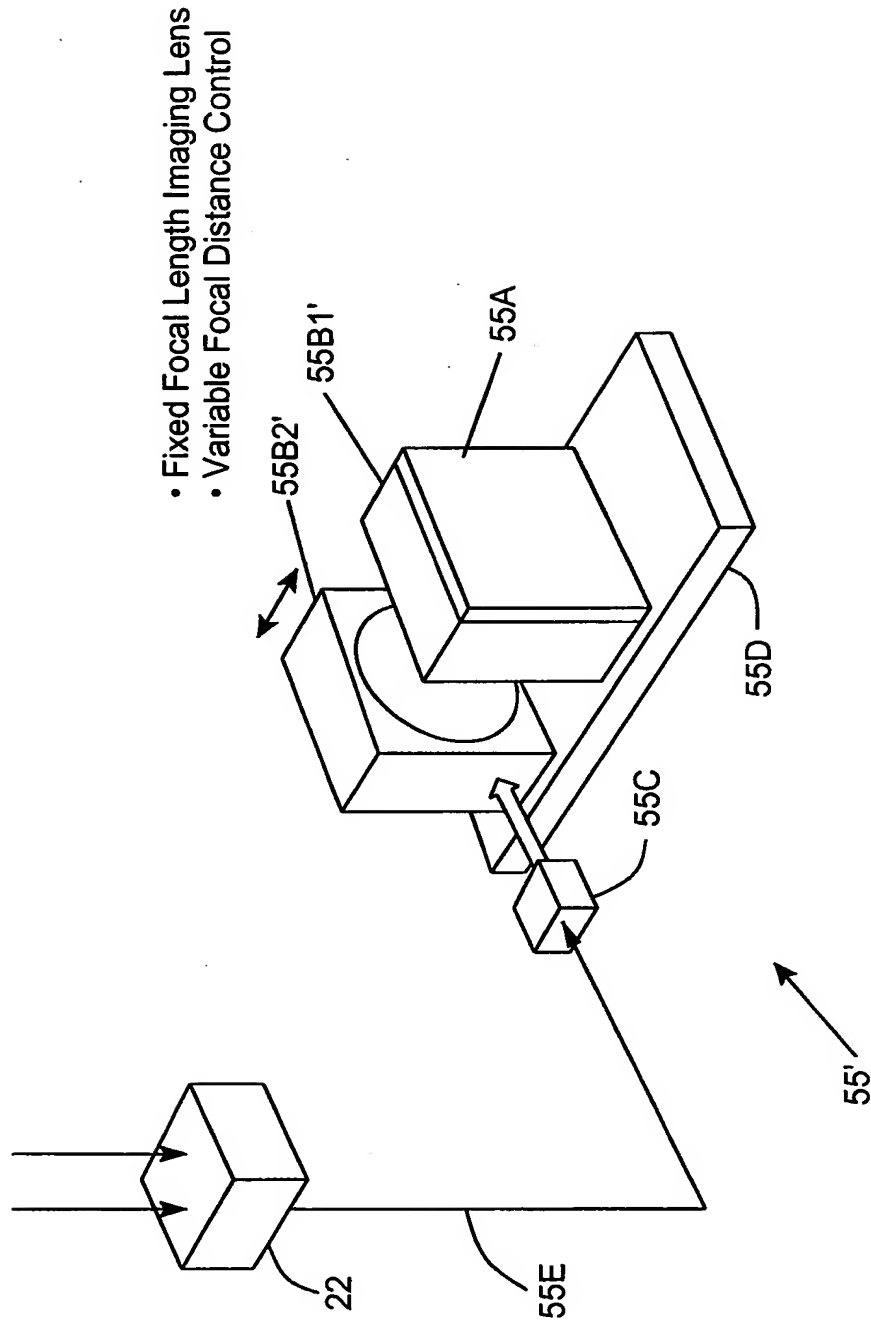
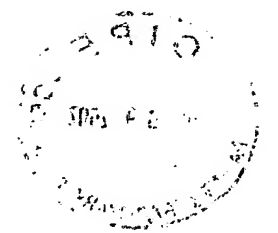


FIG. 5C4



206070" T506500T

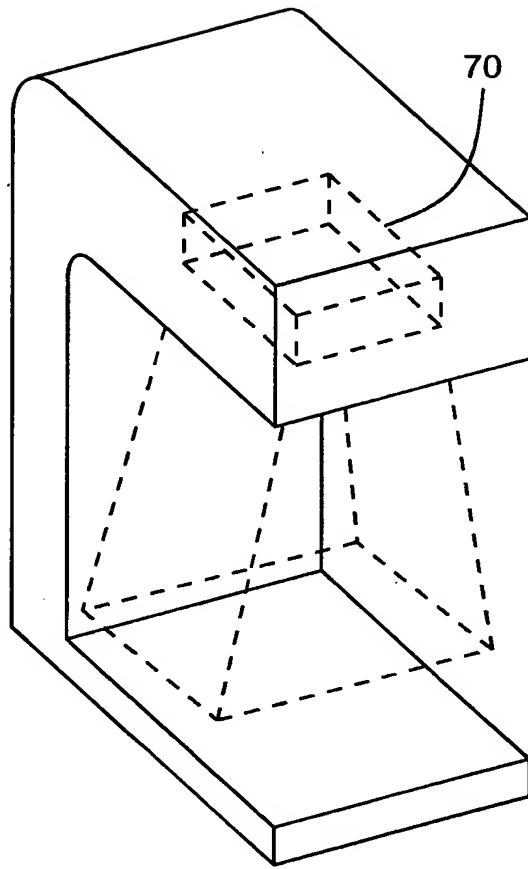
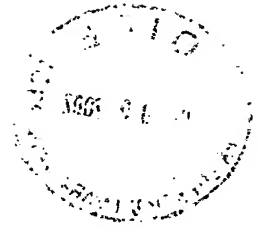


FIG. 5D

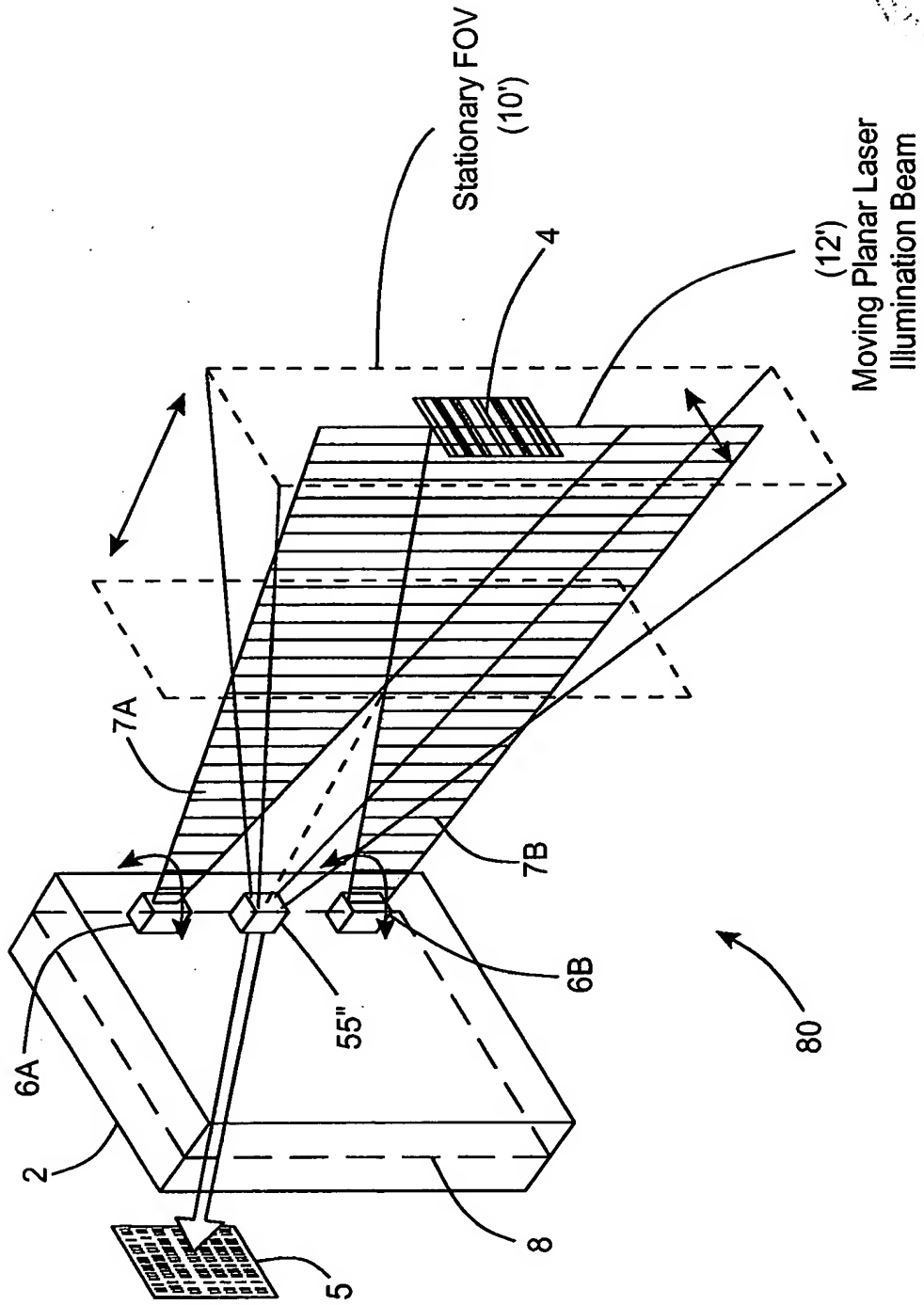


FIG. 6A



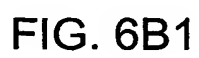


FIG. 6B1

- (1) Variable Focal Length Camera Lens
- (2) Variable Focal Distance

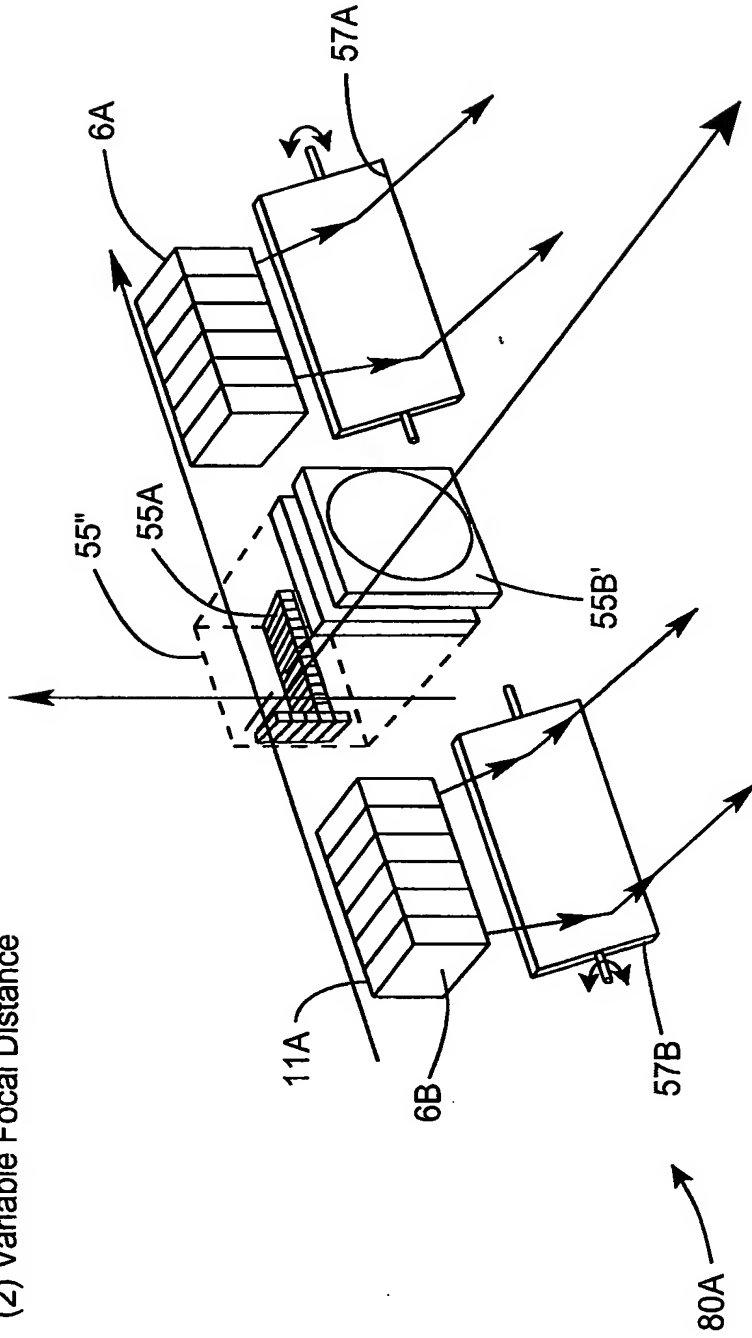


FIG. 6B2



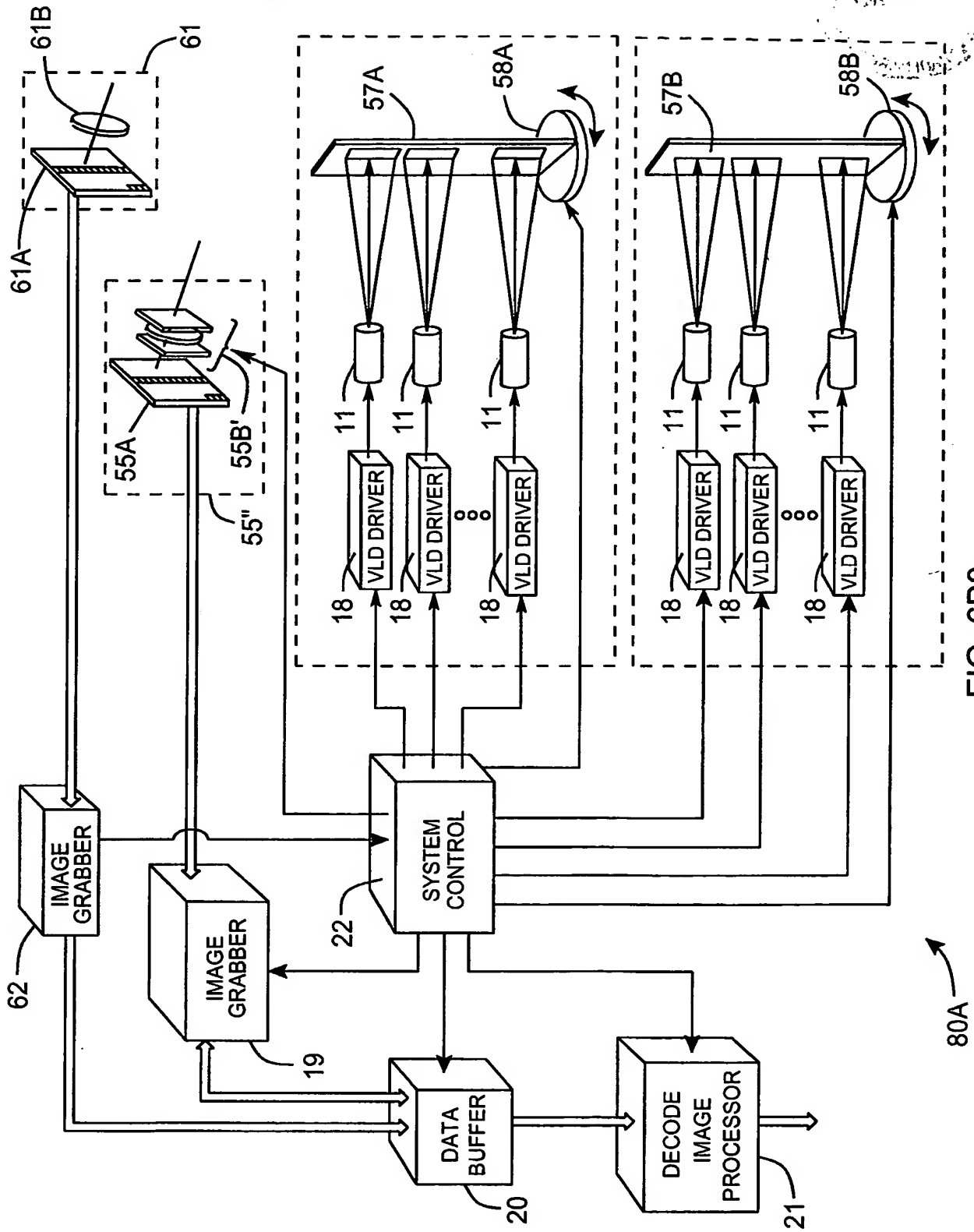


FIG. 6B3

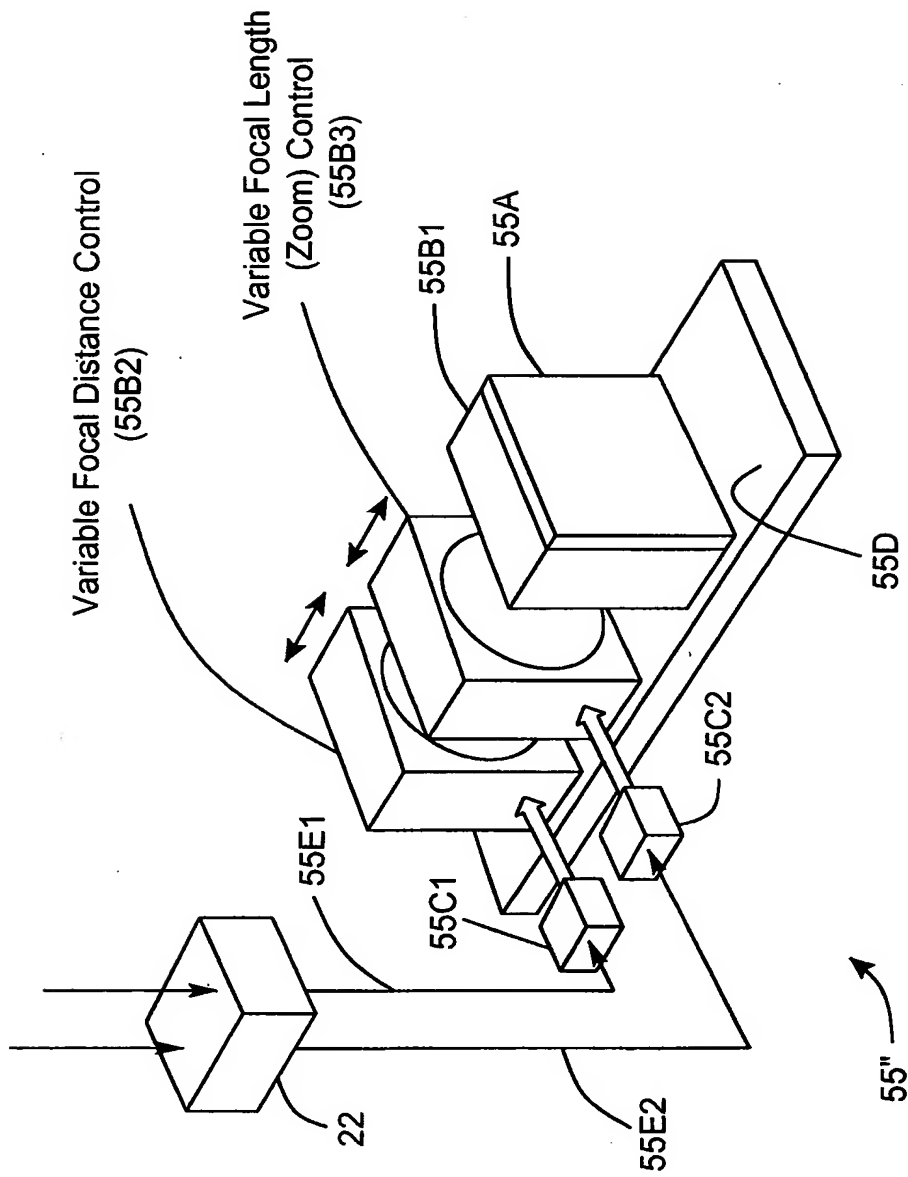


FIG. 6B4



206020 T506500T

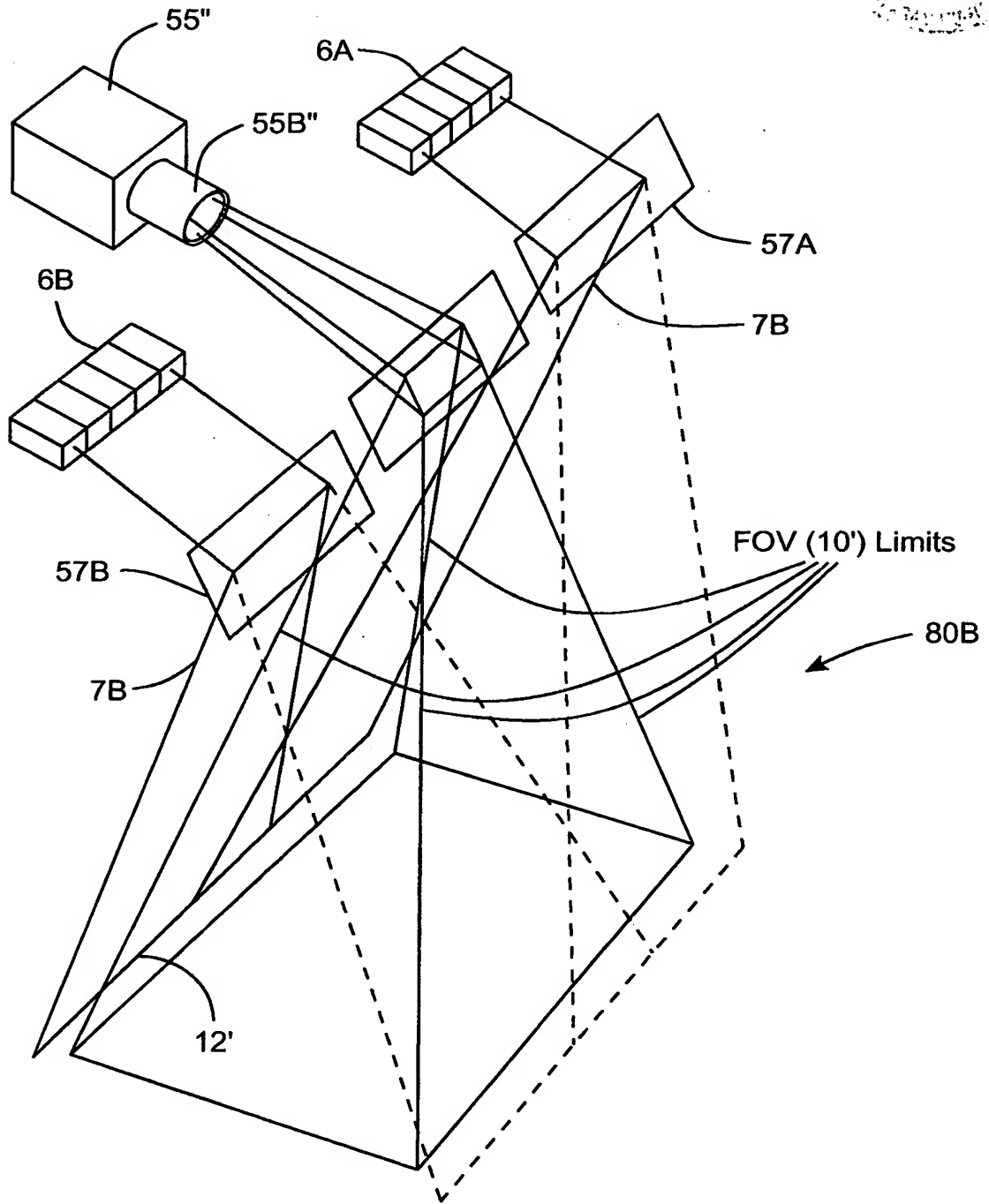
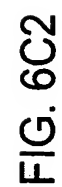
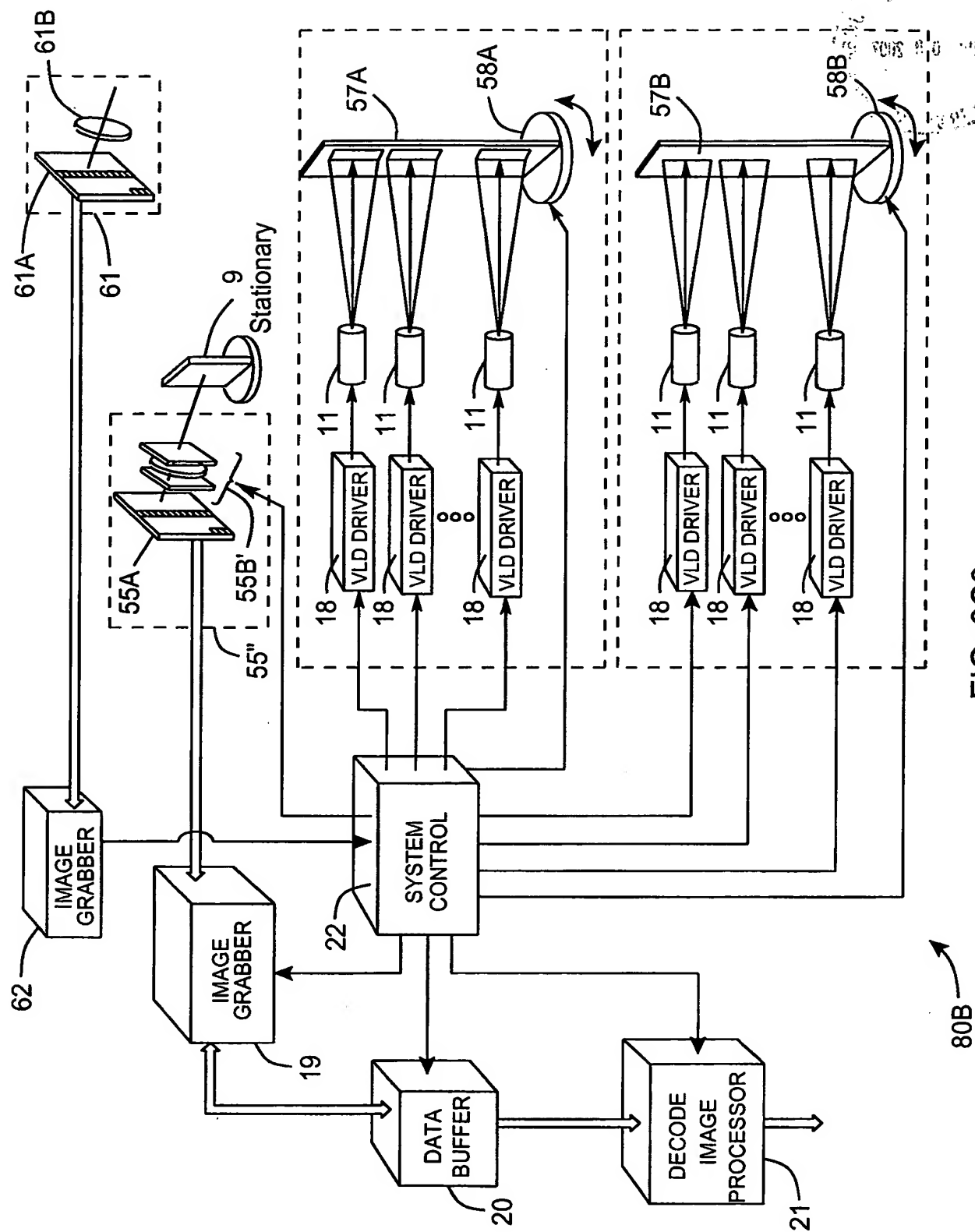


FIG. 6C1





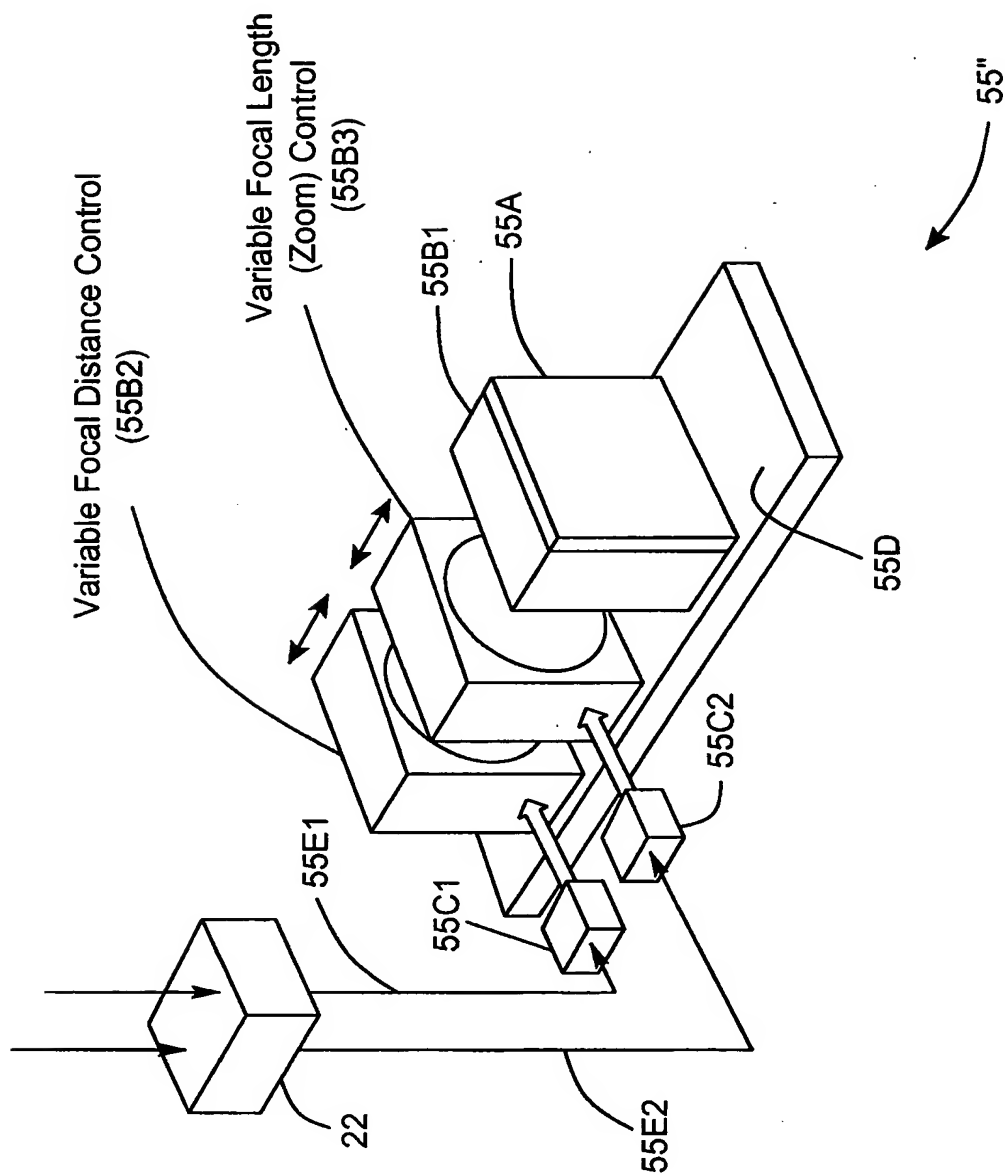


FIG. 6C4

206020 T506500T

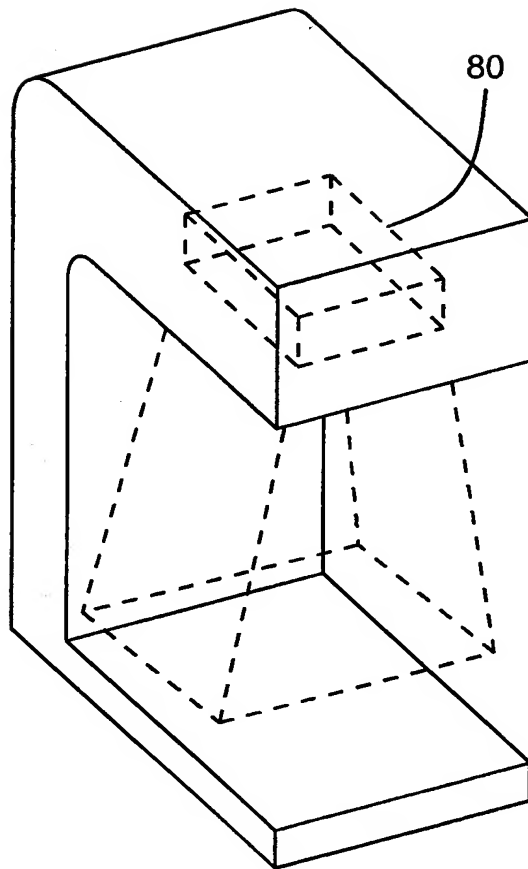


FIG. 6D

206020 T506500T

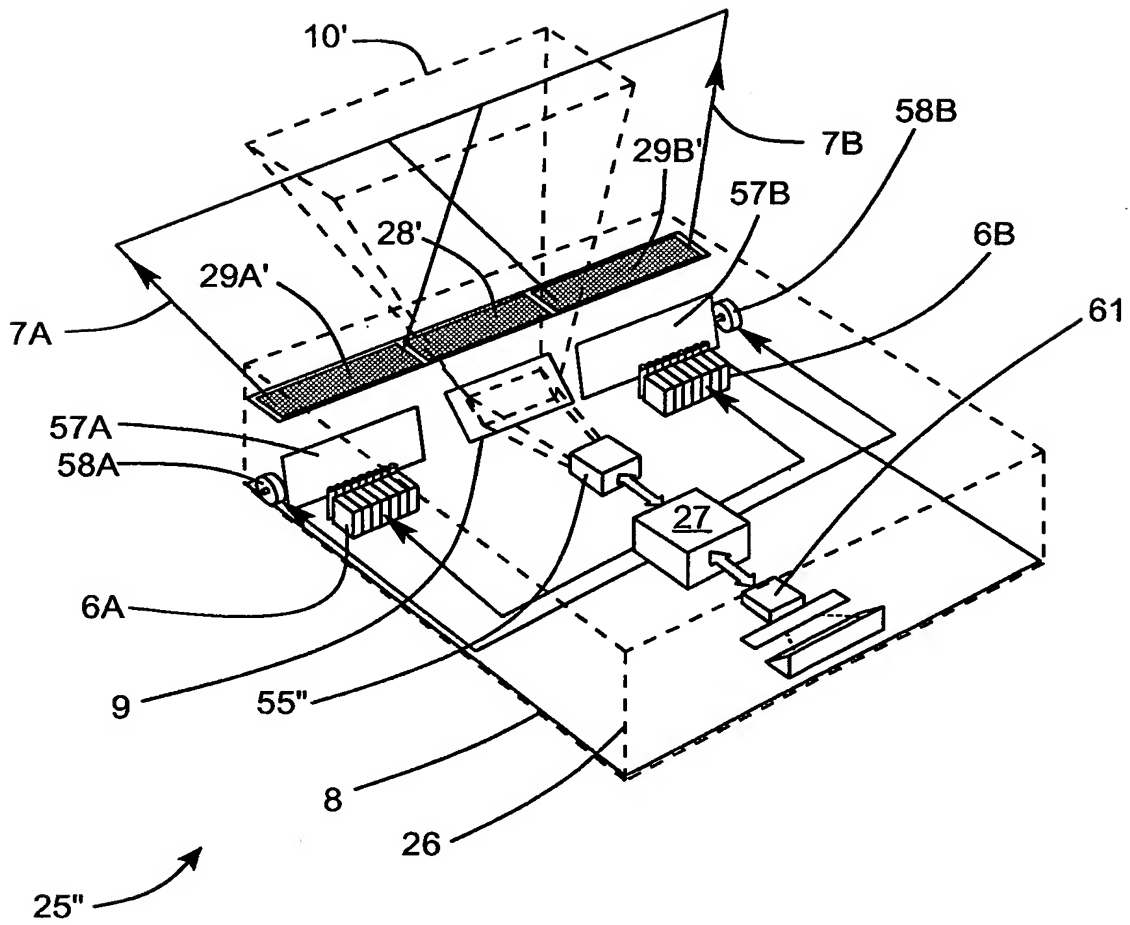


FIG. 6D1

10059051.070902

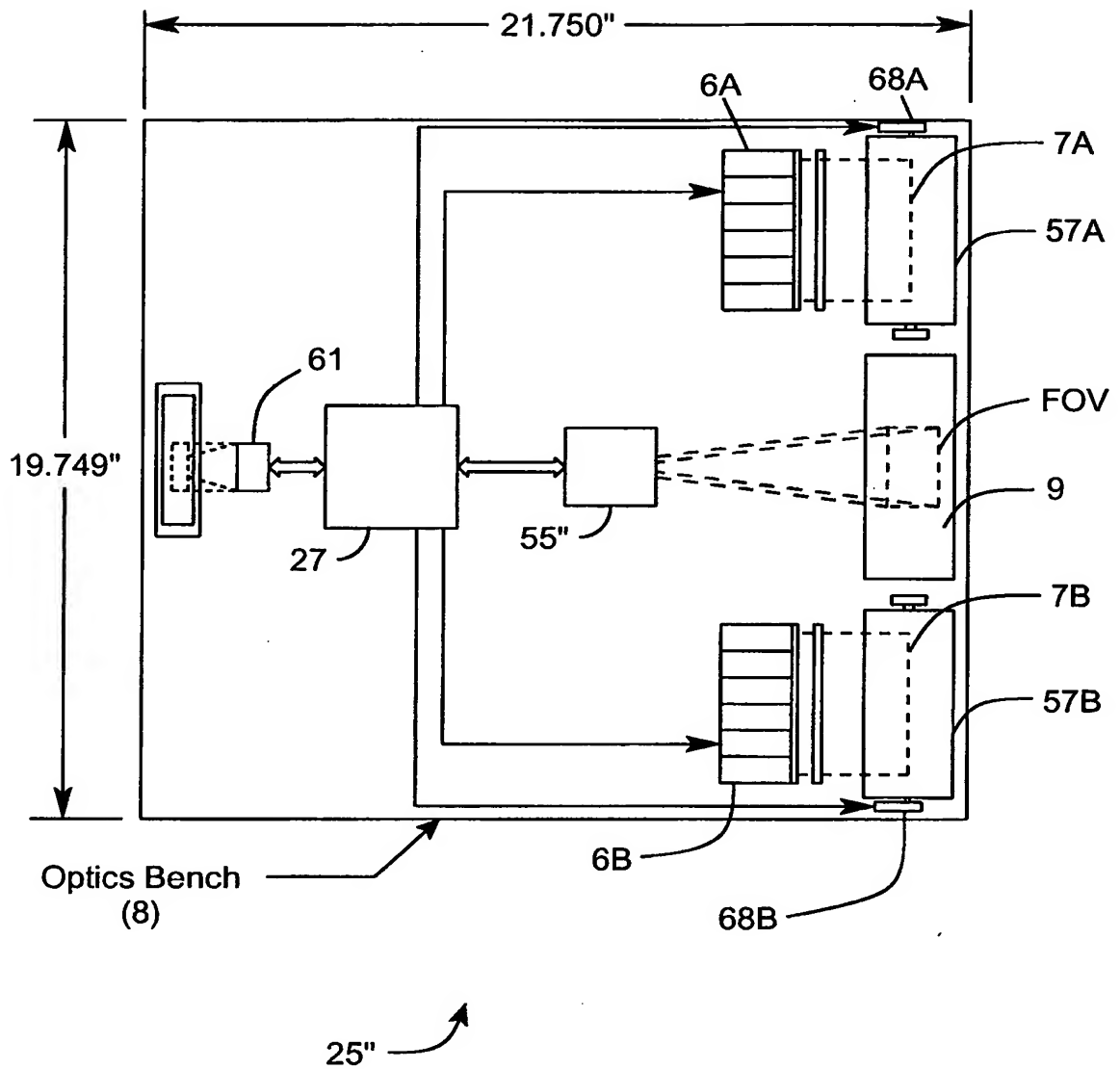
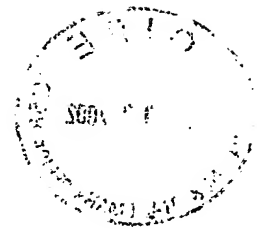


FIG. 6D2

10059051.070902

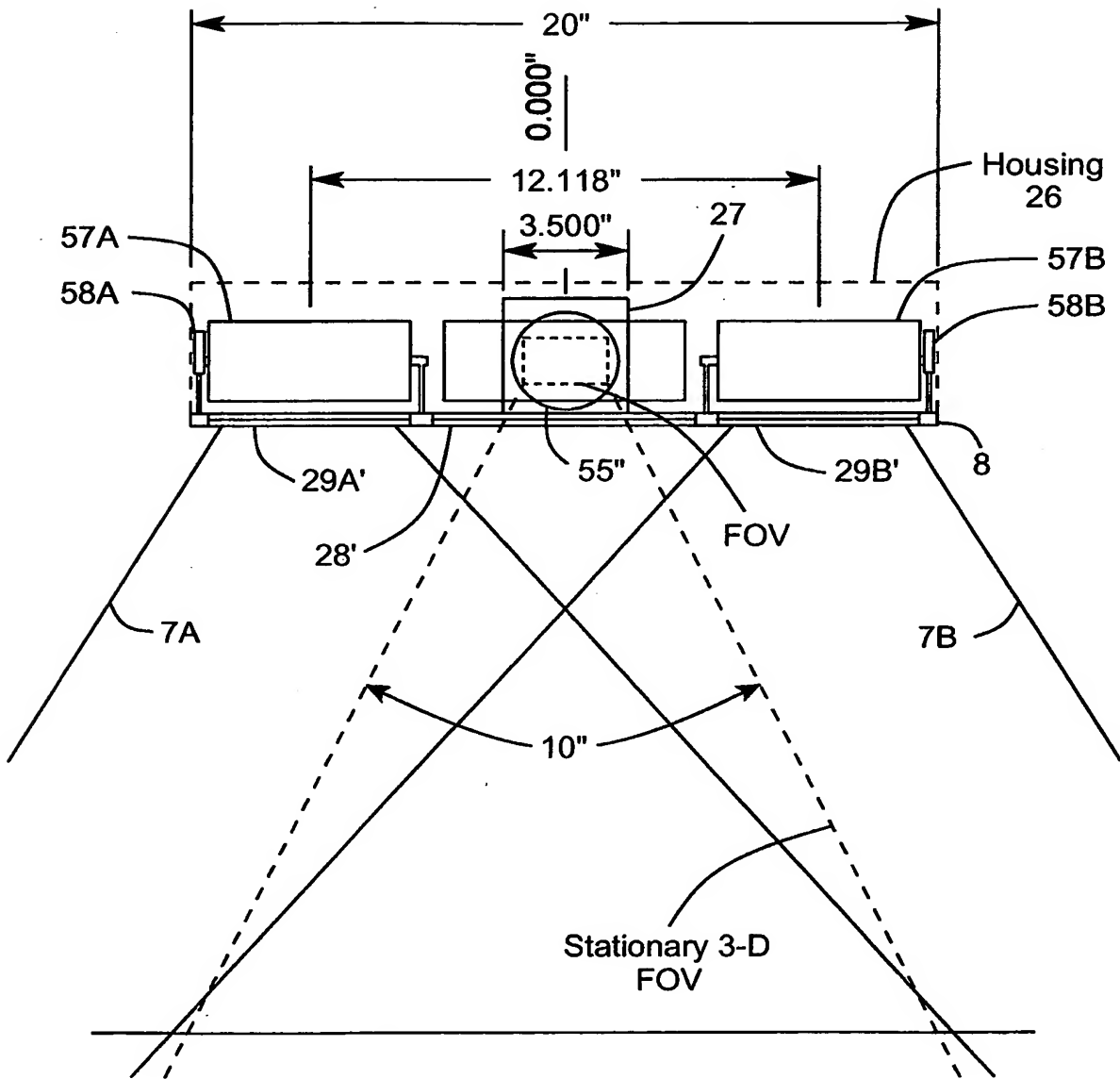
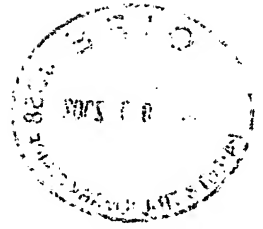


FIG. 6D3

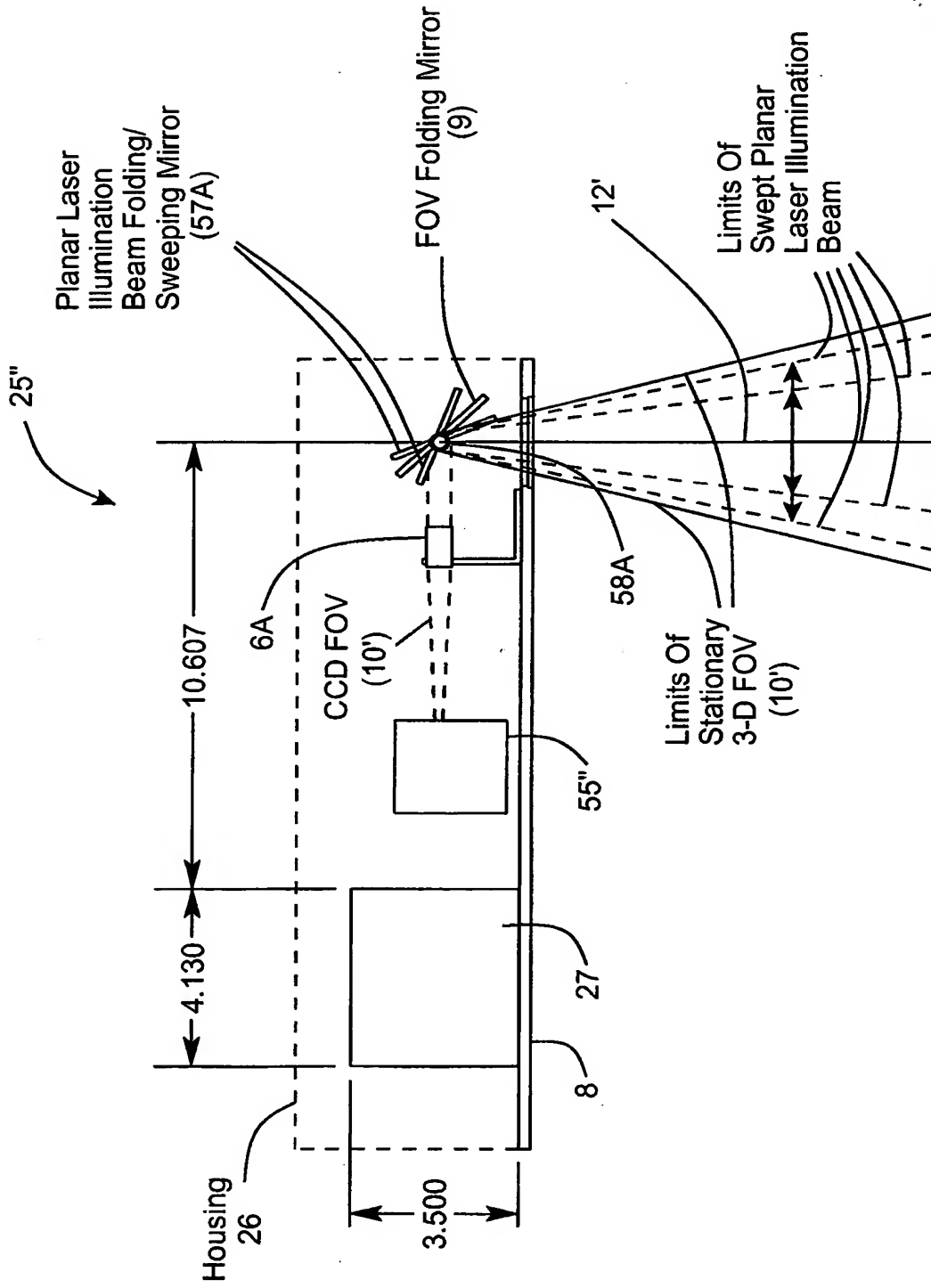


FIG. 6D4



The diagram illustrates the experimental setup for the study. It shows a top-down view of a conveyor belt system. The belt is represented by a horizontal line at the bottom, labeled "BELT LEVEL". Above the belt, a large trapezoidal area represents the "TALLEST BOX LEVEL". The width of the belt is indicated as 42". The height of the tallest box level is indicated as 36". The "CCD FOV LIMITS" are shown as a smaller trapezoidal area within the tallest box level. The width of the CCD FOV limits at the top is 20". The height of the CCD FOV limits is 25". The distance from the belt level to the top of the CCD FOV limits is 8". The distance from the belt level to the bottom of the CCD FOV limits is 22". The distance from the belt level to the top of the tallest box level is 3.5". The distance from the belt level to the bottom of the tallest box level is 36". The distance from the belt level to the top of the CCD FOV limits is 8". The distance from the belt level to the bottom of the CCD FOV limits is 22". The distance from the belt level to the top of the tallest box level is 3.5". The distance from the belt level to the bottom of the tallest box level is 36".

FIG. 6D5

206020-T506500T

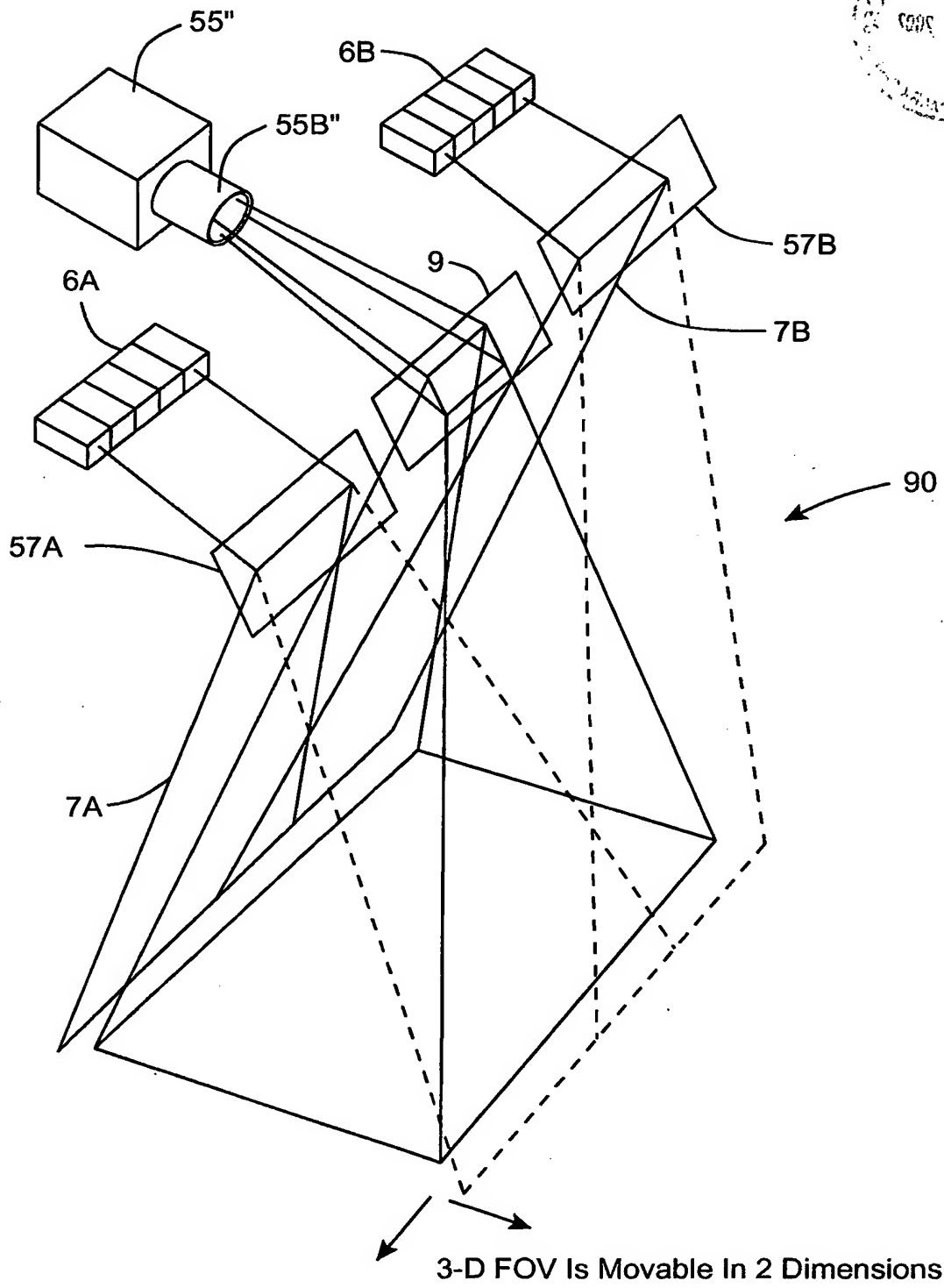


FIG. 6E1

- (1) Variable Focal Length Camera Lens
- (2) Variable Focal Distance

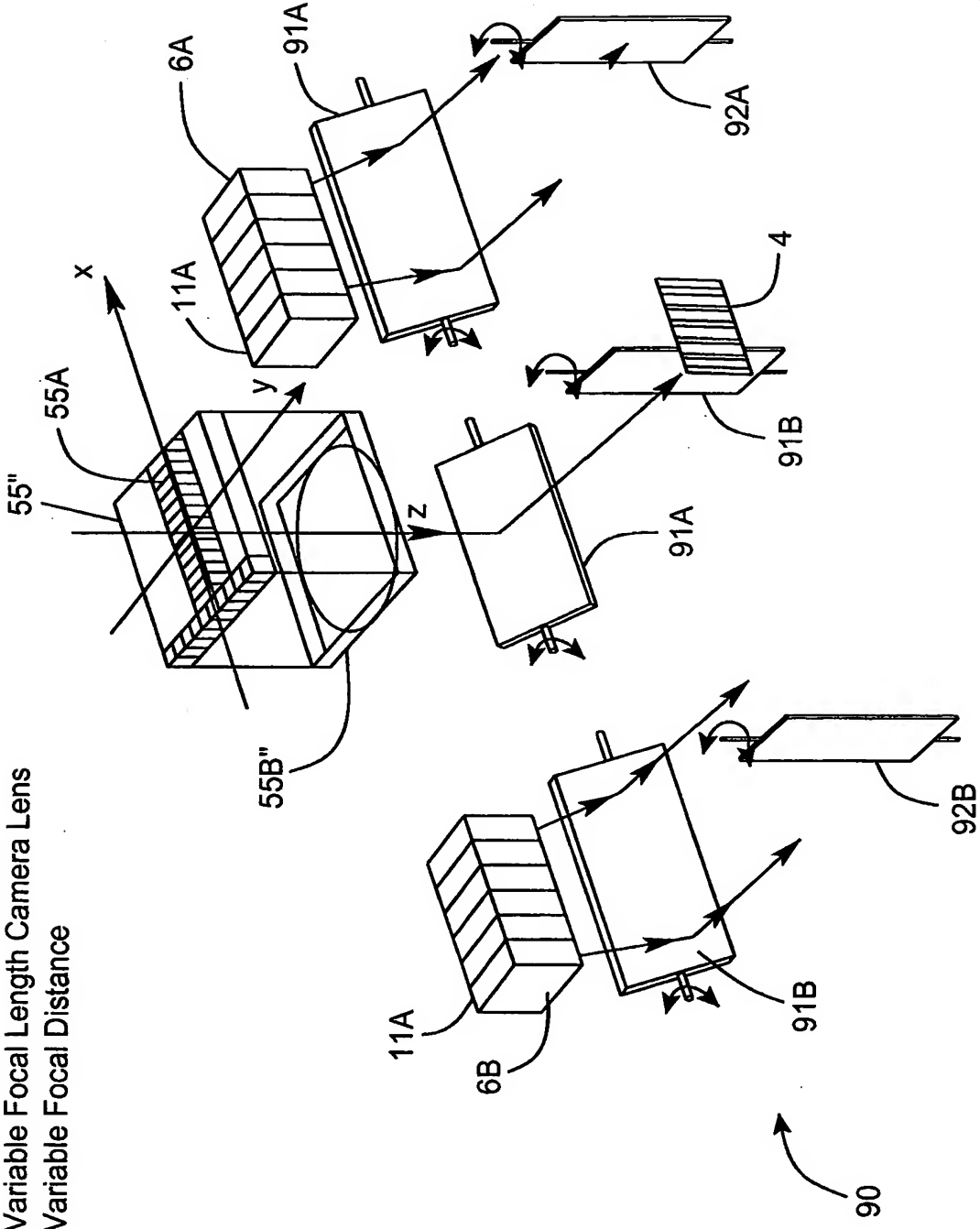


FIG. 6E2





206040" T506500T

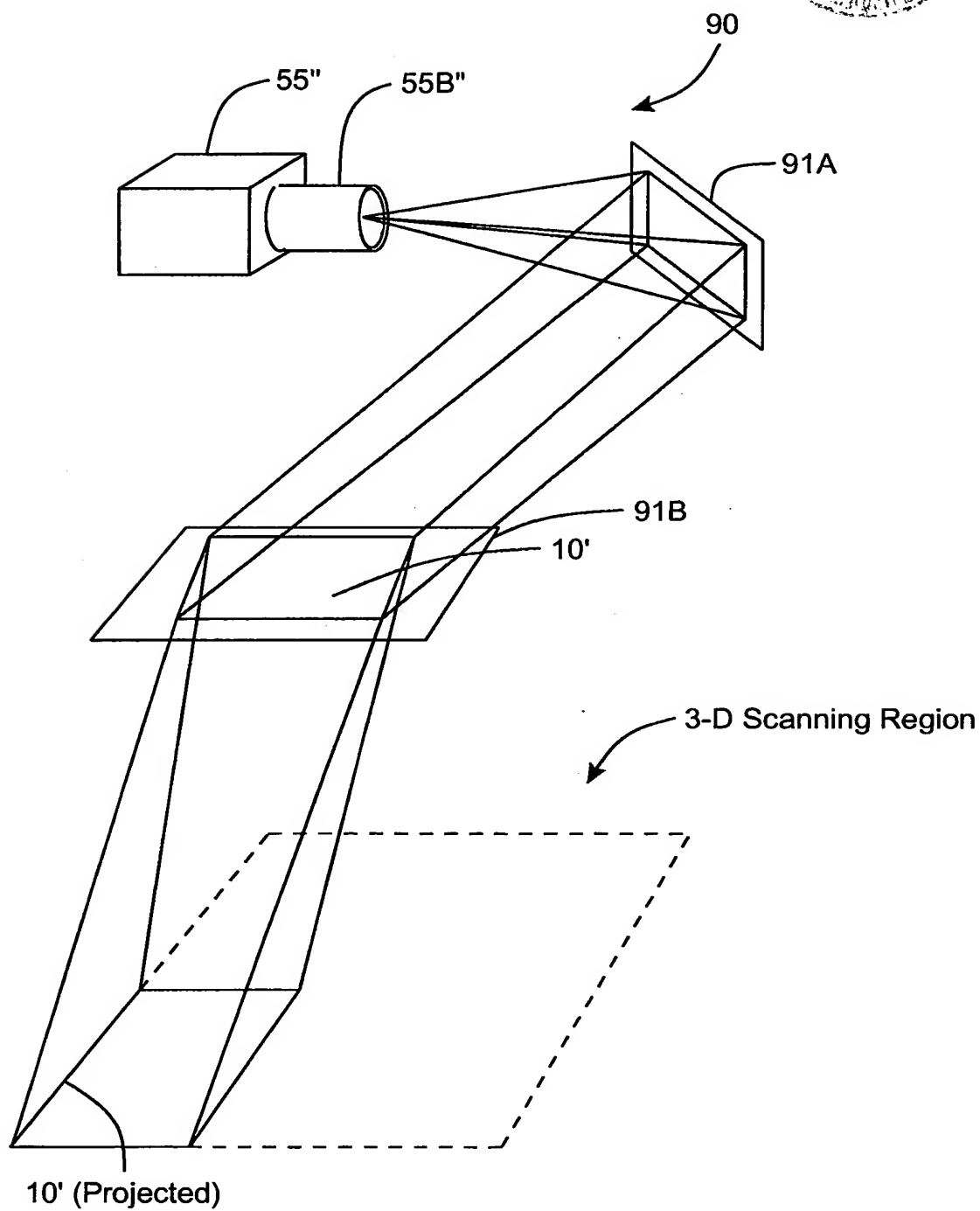


FIG. 6E4

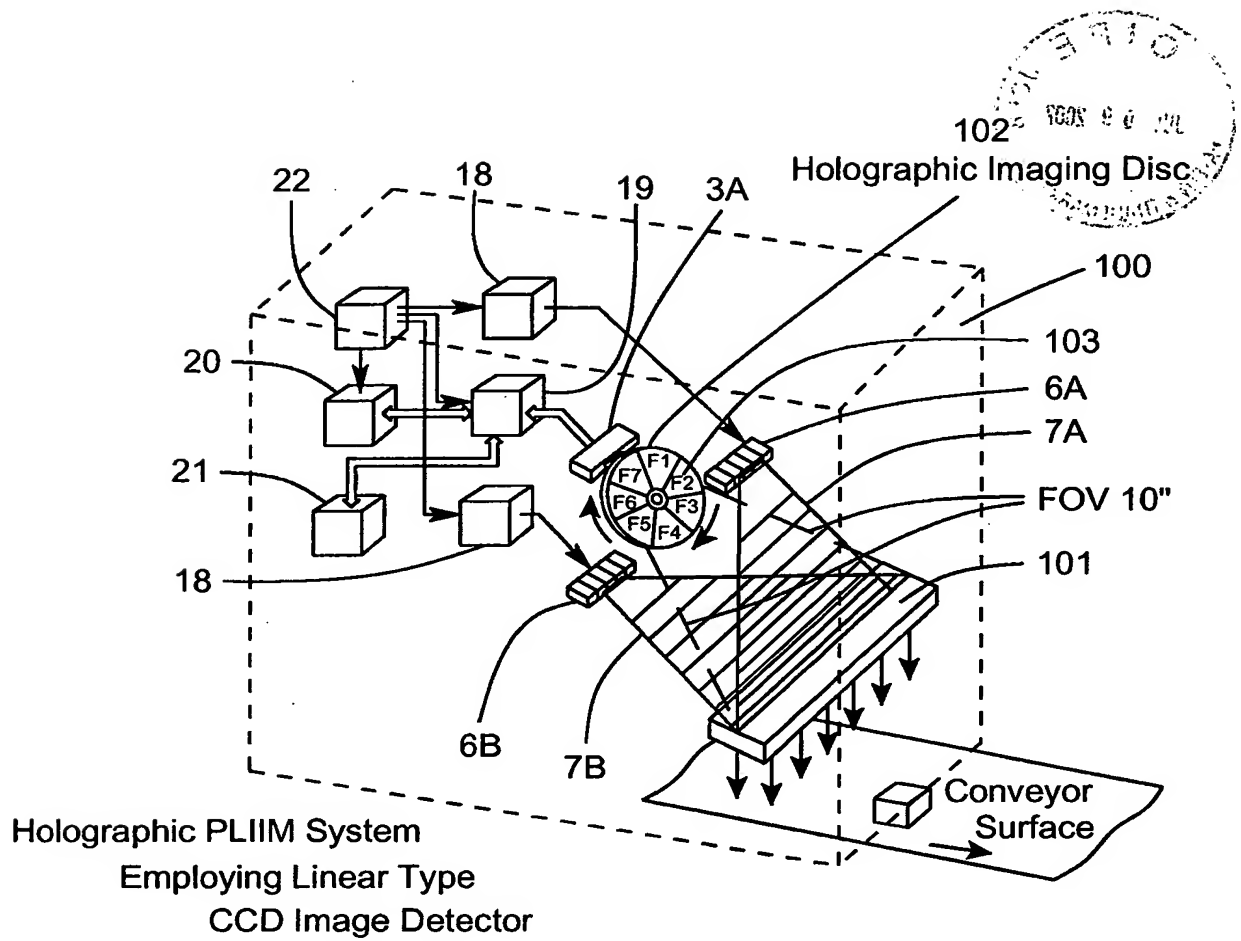


FIG. 7A

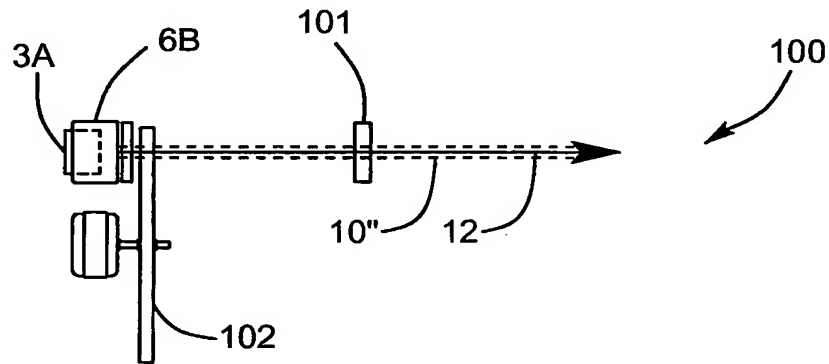


FIG. 7B

206040 T5065001

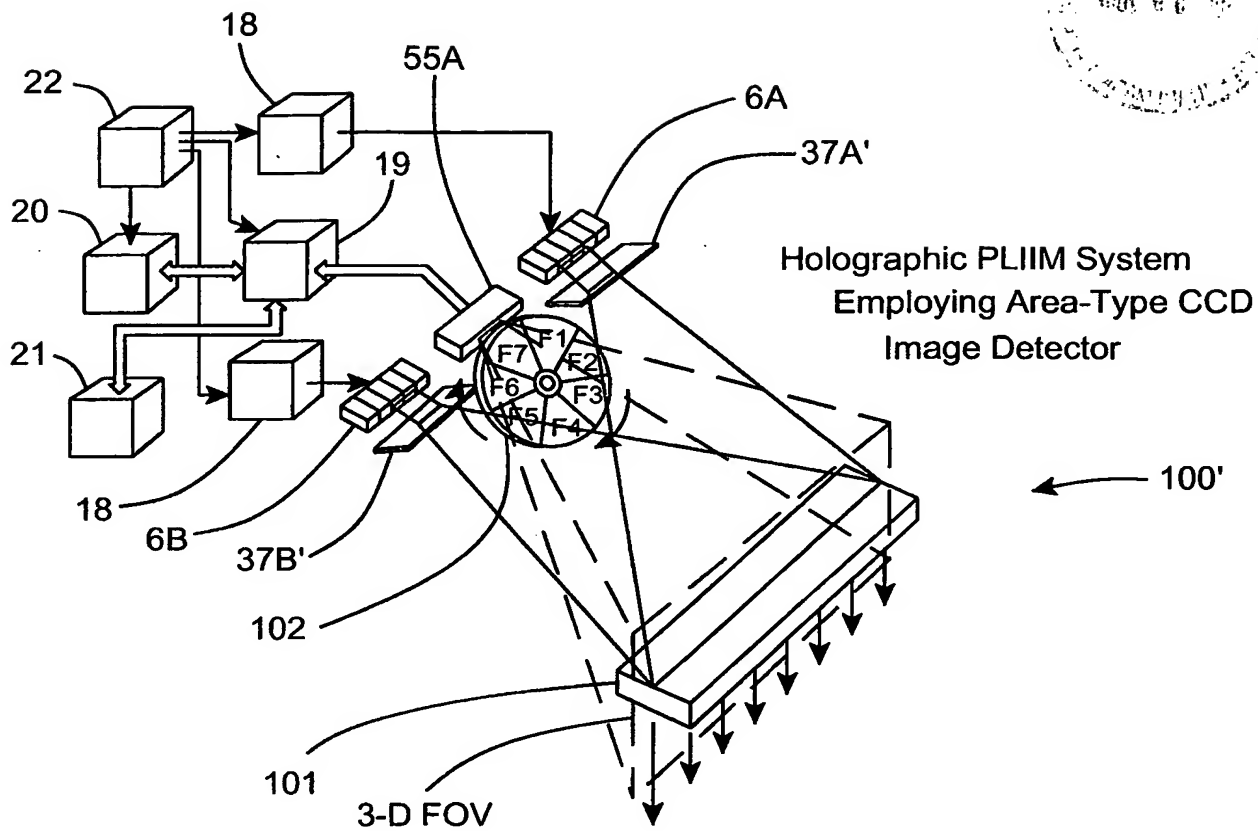


FIG. 8A

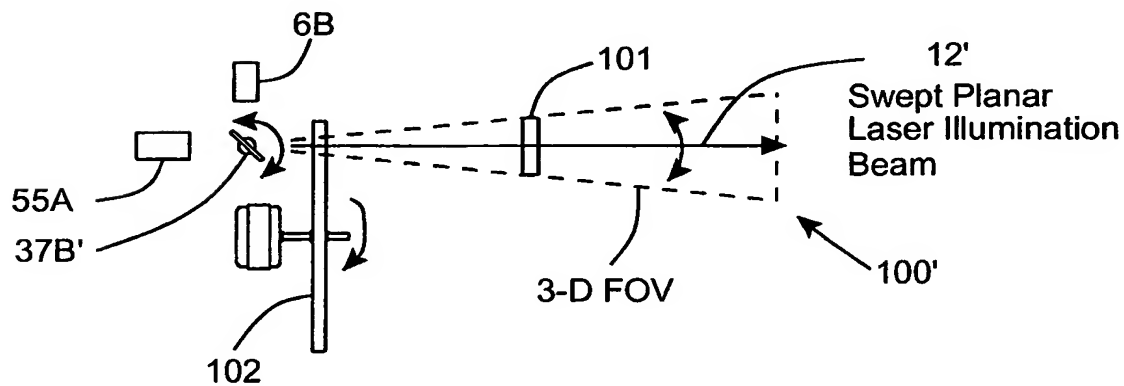


FIG. 8B

1-D CCD Scanner Embodiment

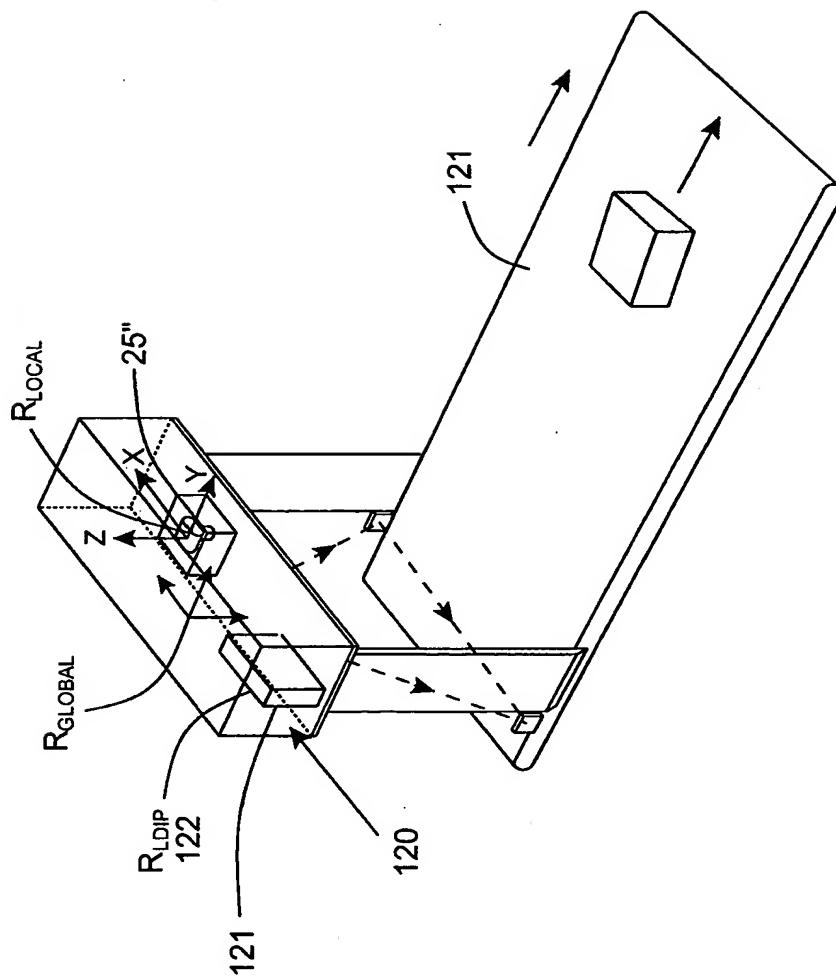


FIG. 9



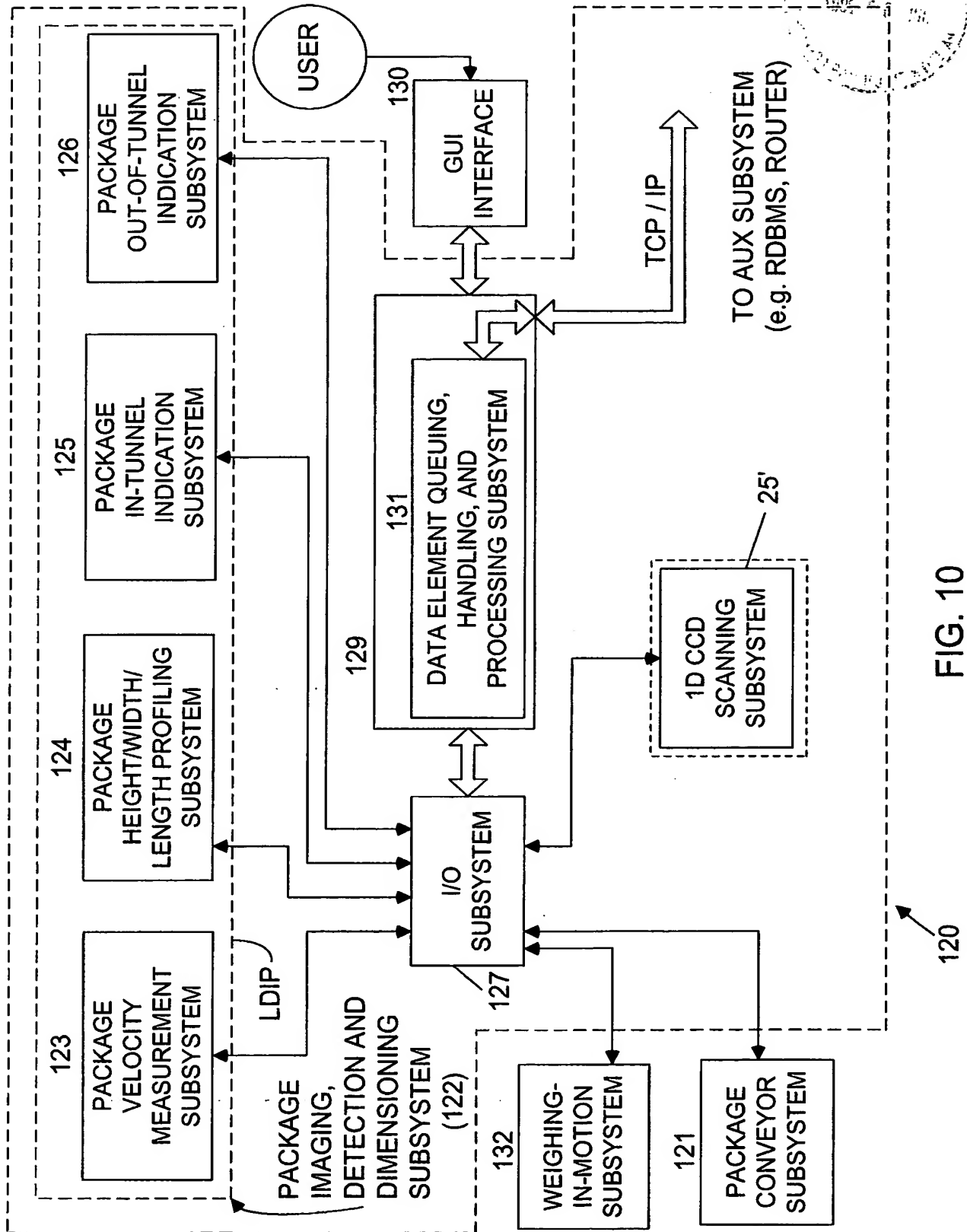


FIG. 10

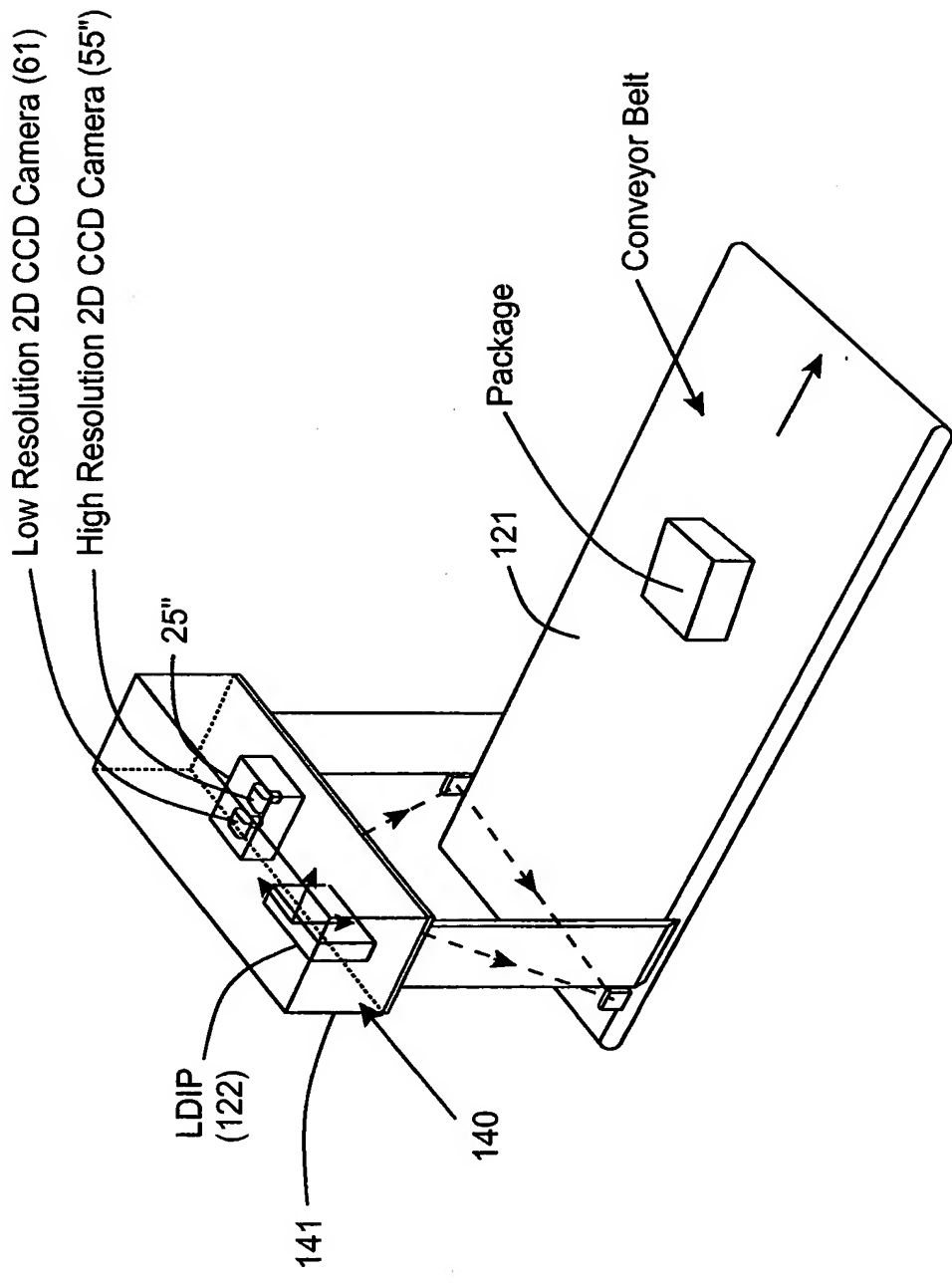


FIG. 11

206040 T506500T

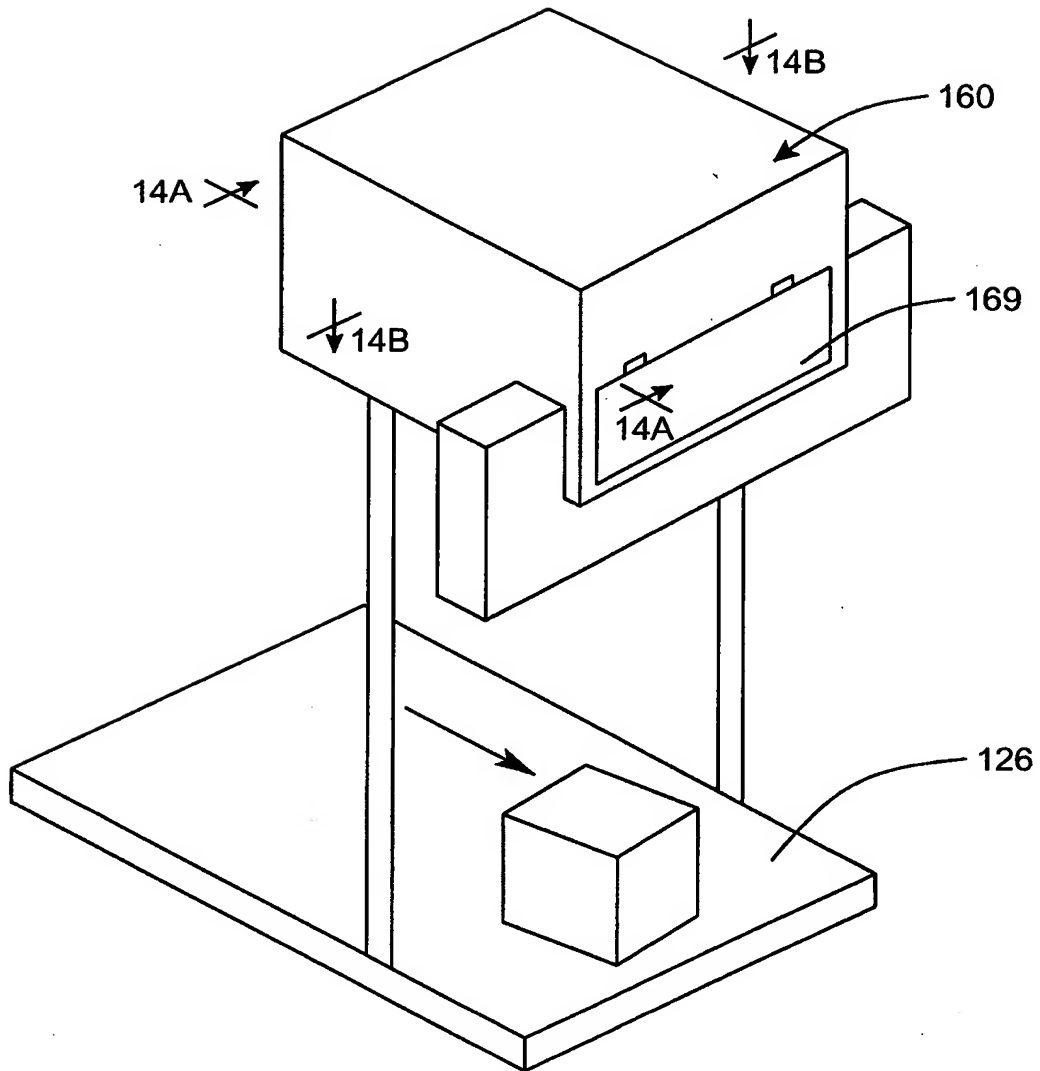


FIG. 13

206040" T506500T

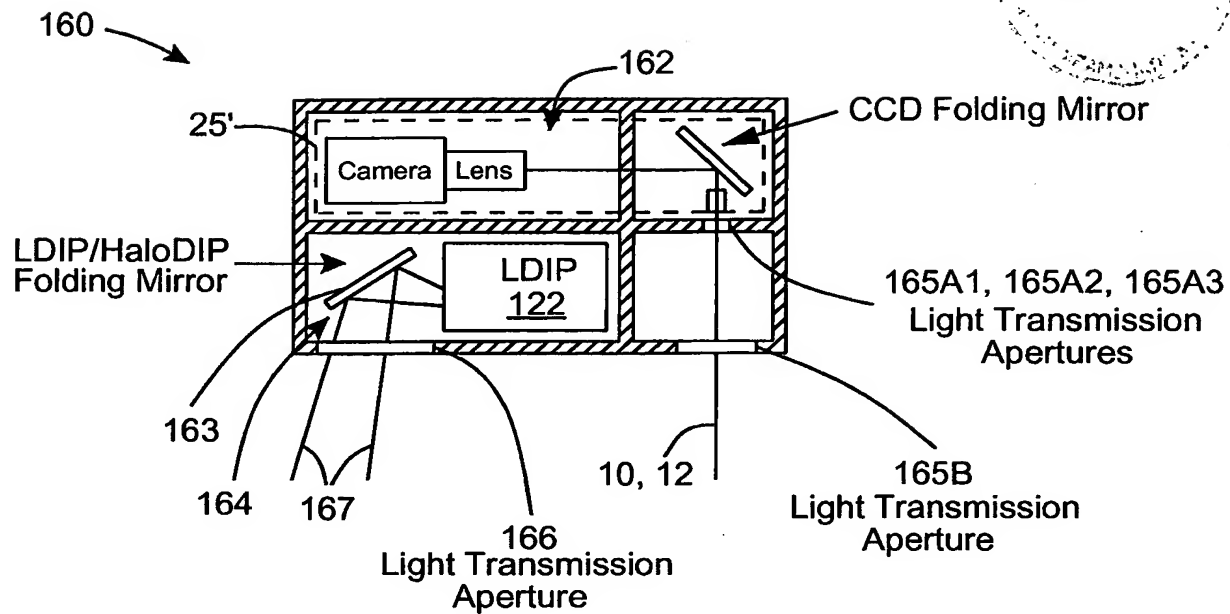


FIG. 14A

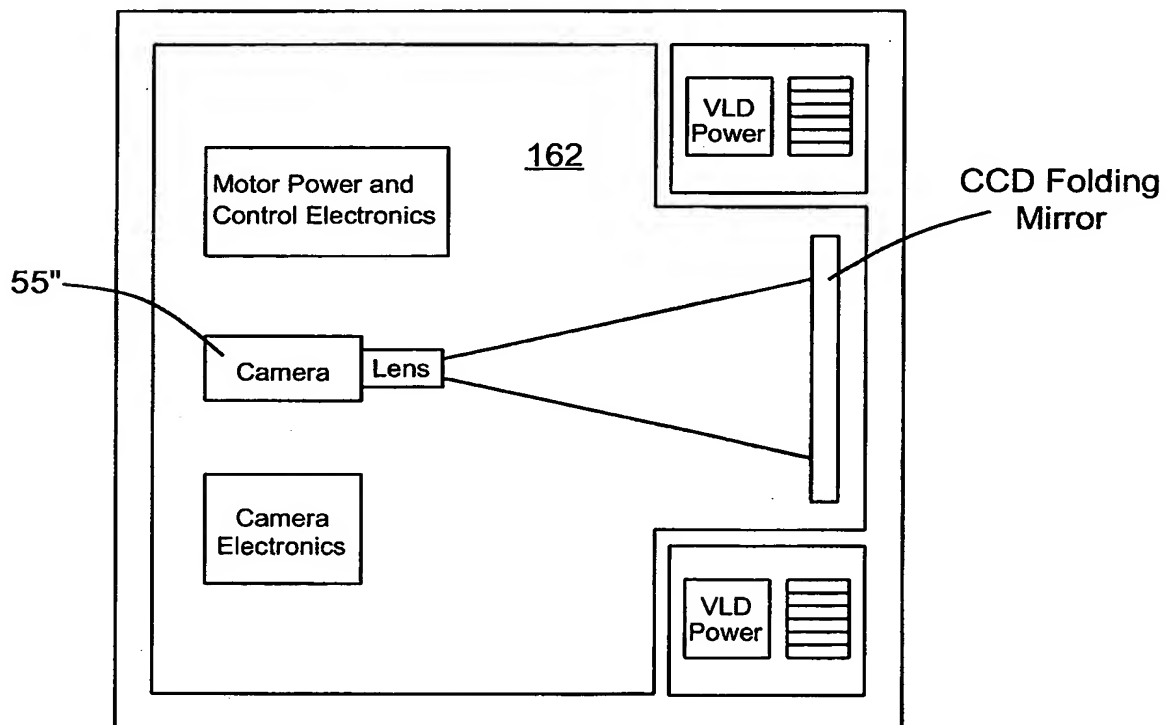


FIG. 14B

206040 T506500T

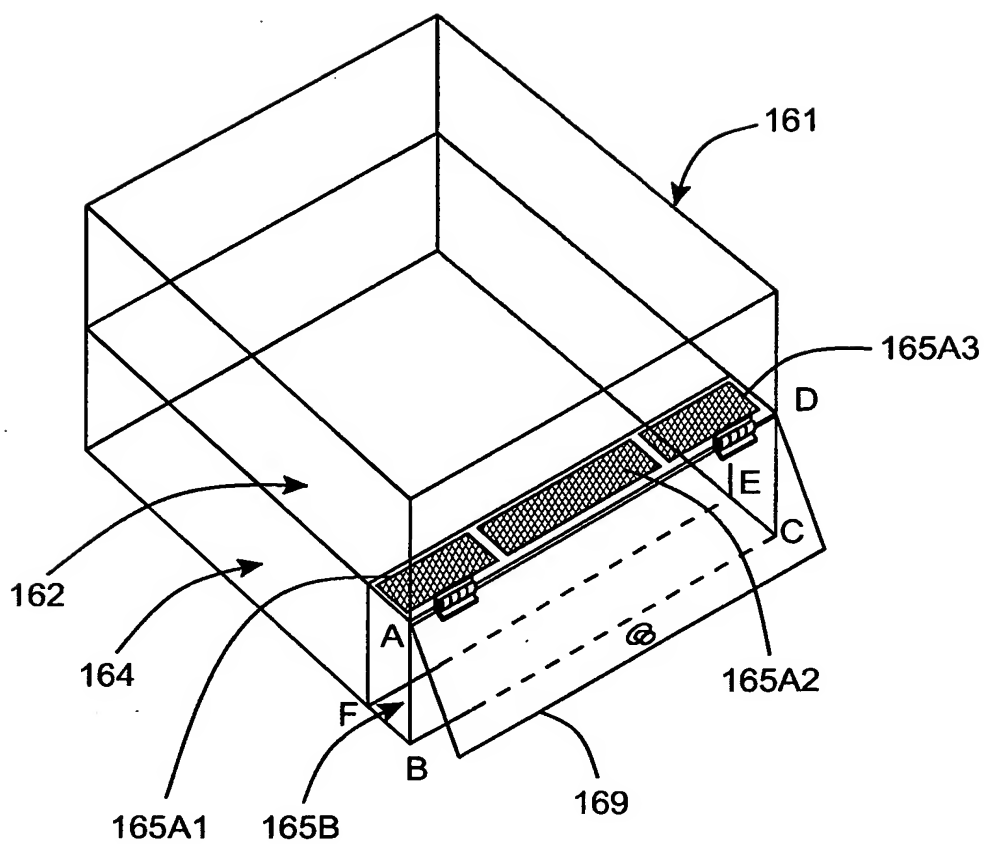
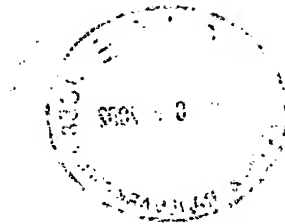


FIG. 15

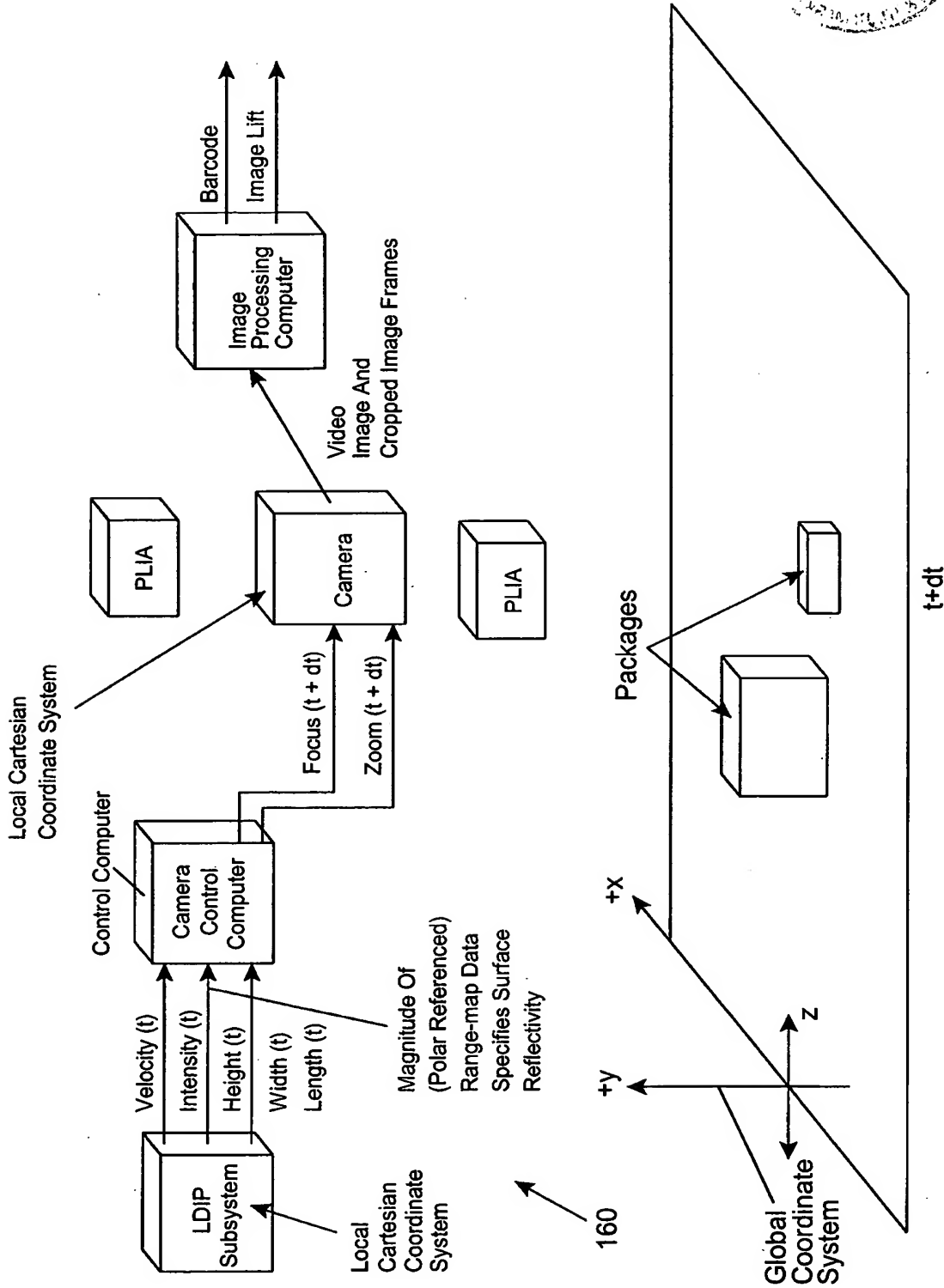
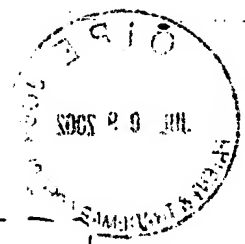


FIG. 16



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Fixed focal length / fixed focus vision

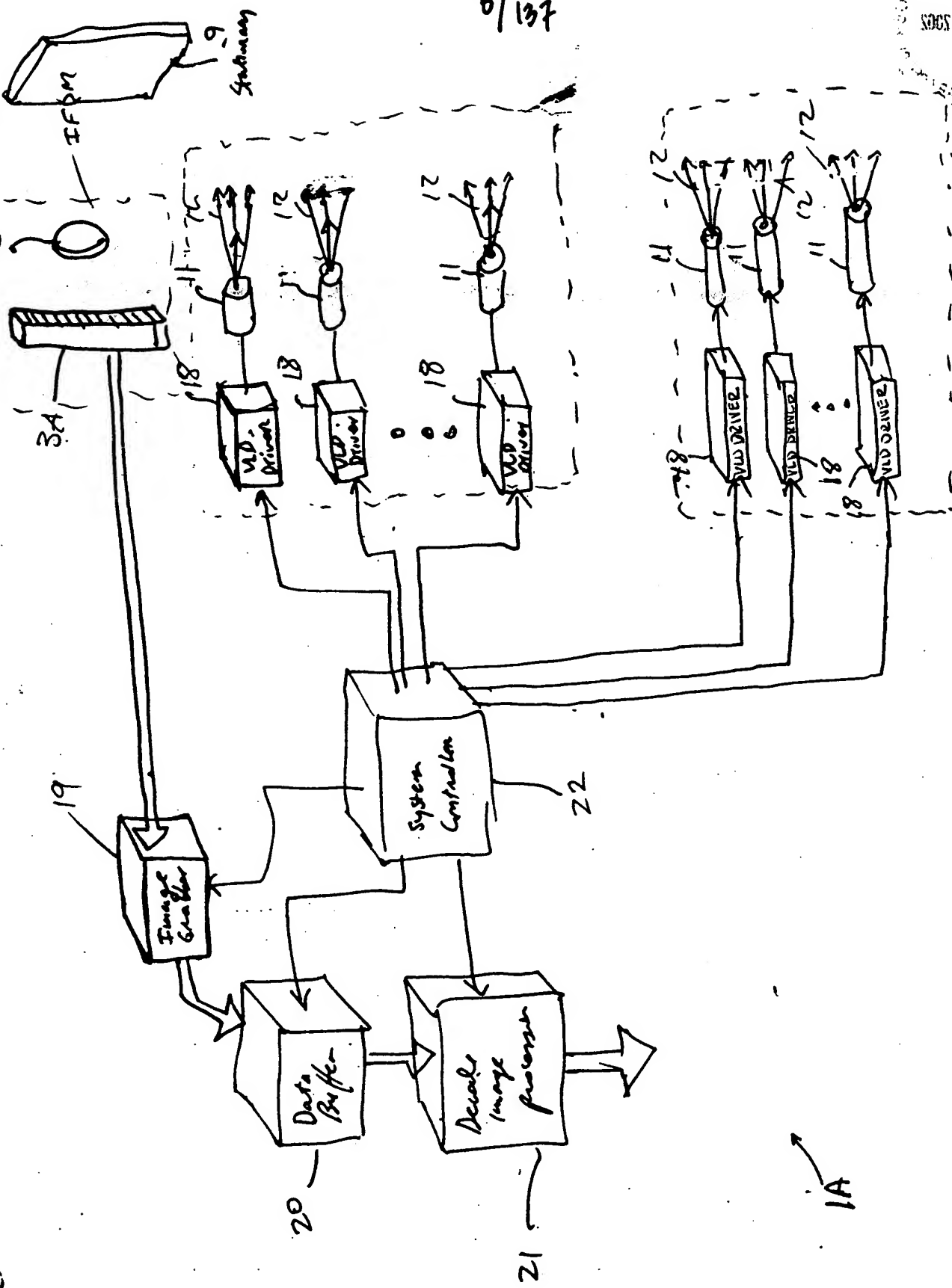


FIG. 1F

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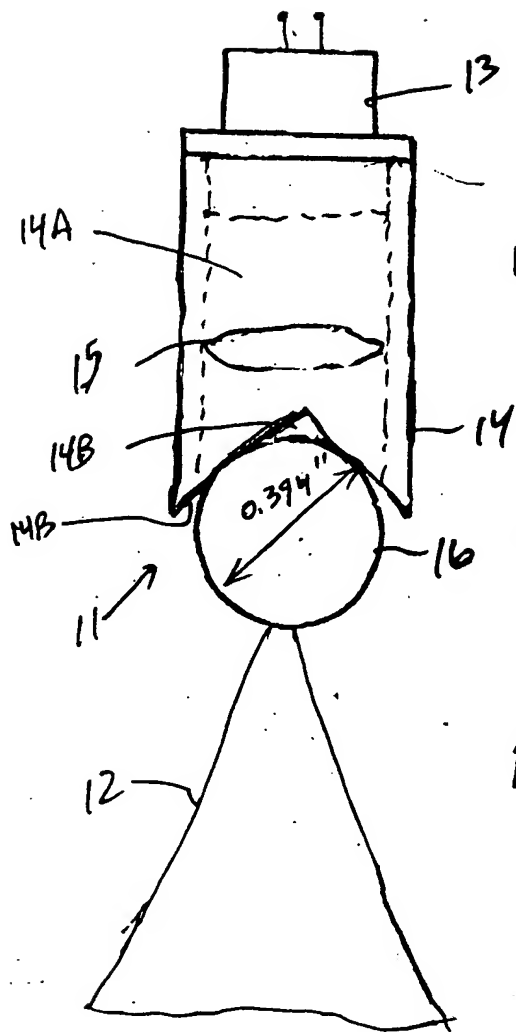


FIG. 1I1

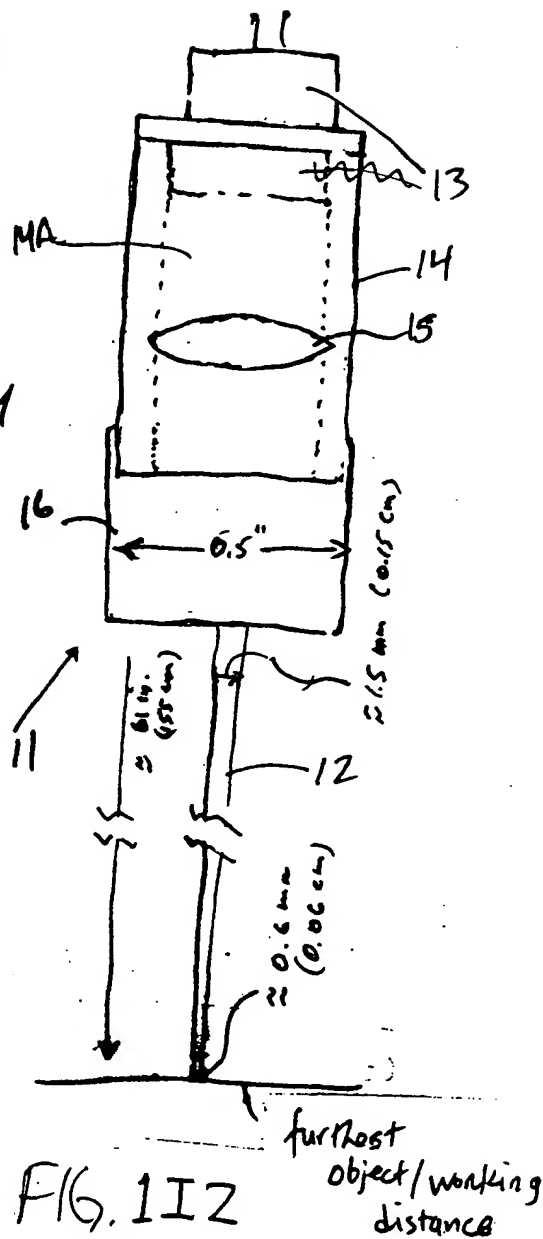


FIG. 1I2

A circular postmark from Berlin, dated 10. 6. 1905. The text "BERLIN" is at the top, "10. 6. 1905" is in the center, and "POST" is at the bottom.

Object distance (m)	far object distance focus (W/m²)	constant line height (infinite focus) (W/m²)
0.7	0.64	1.02
0.75	0.66	1.00
0.8	0.67	0.98
0.85	0.69	0.96
0.9	0.72	0.94
0.95	0.74	0.91
1.0	0.76	0.88
1.05	0.78	0.85
1.1	0.80	0.82
1.15	0.83	0.78
1.2	0.86	0.75
1.25	0.88	0.72
1.3	0.89	0.68
1.35	0.91	0.64
1.4	0.92	0.61
1.45	0.91	0.57
1.5	0.90	0.53
1.55	0.85	0.50
1.6	0.78	0.46

FIG. 10

A circular stamp with the word "RECEIVED" at the top and the date "JAN 10 1960" in the center. The text is arranged in a circular pattern within the stamp.



FIG. 102

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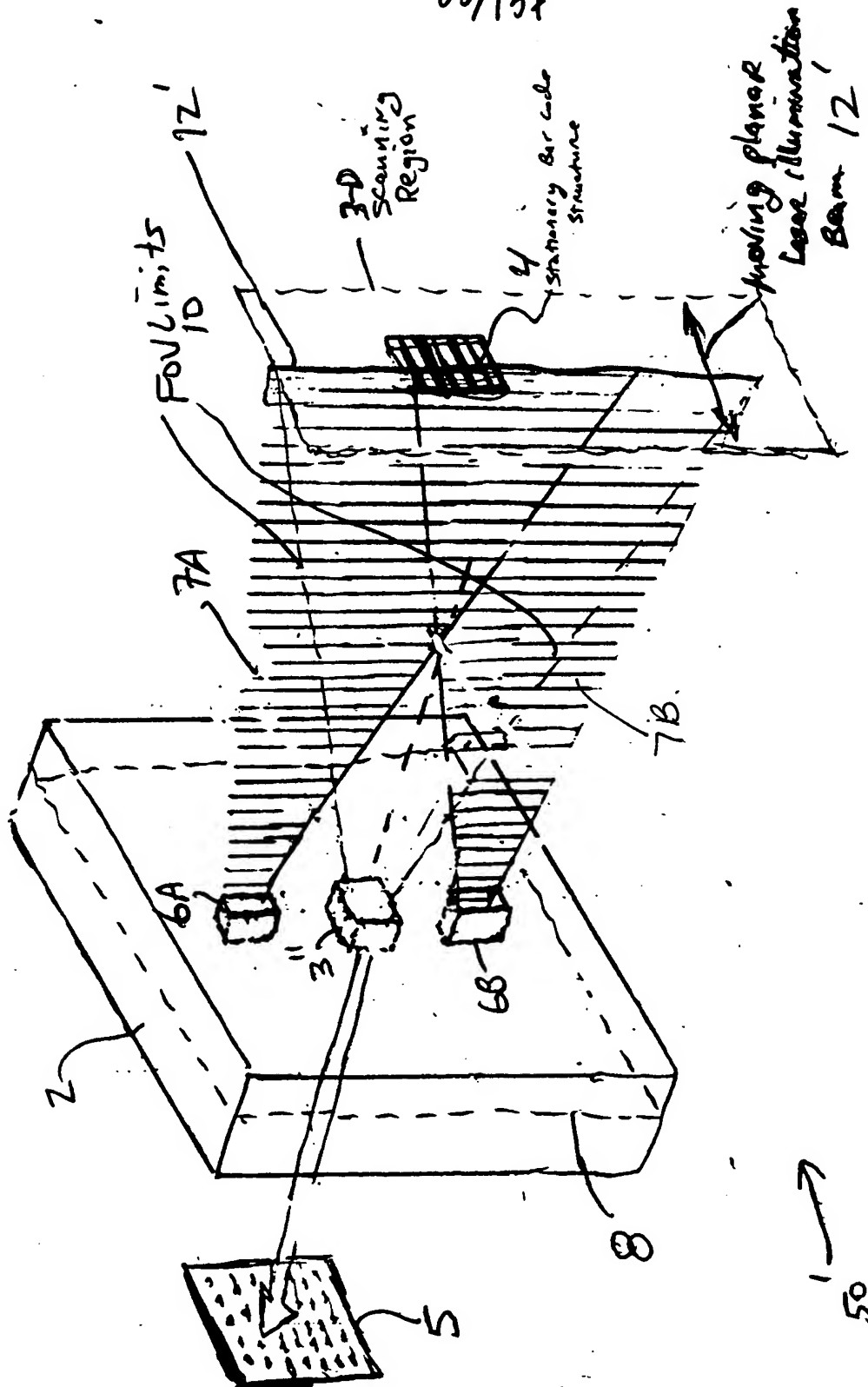
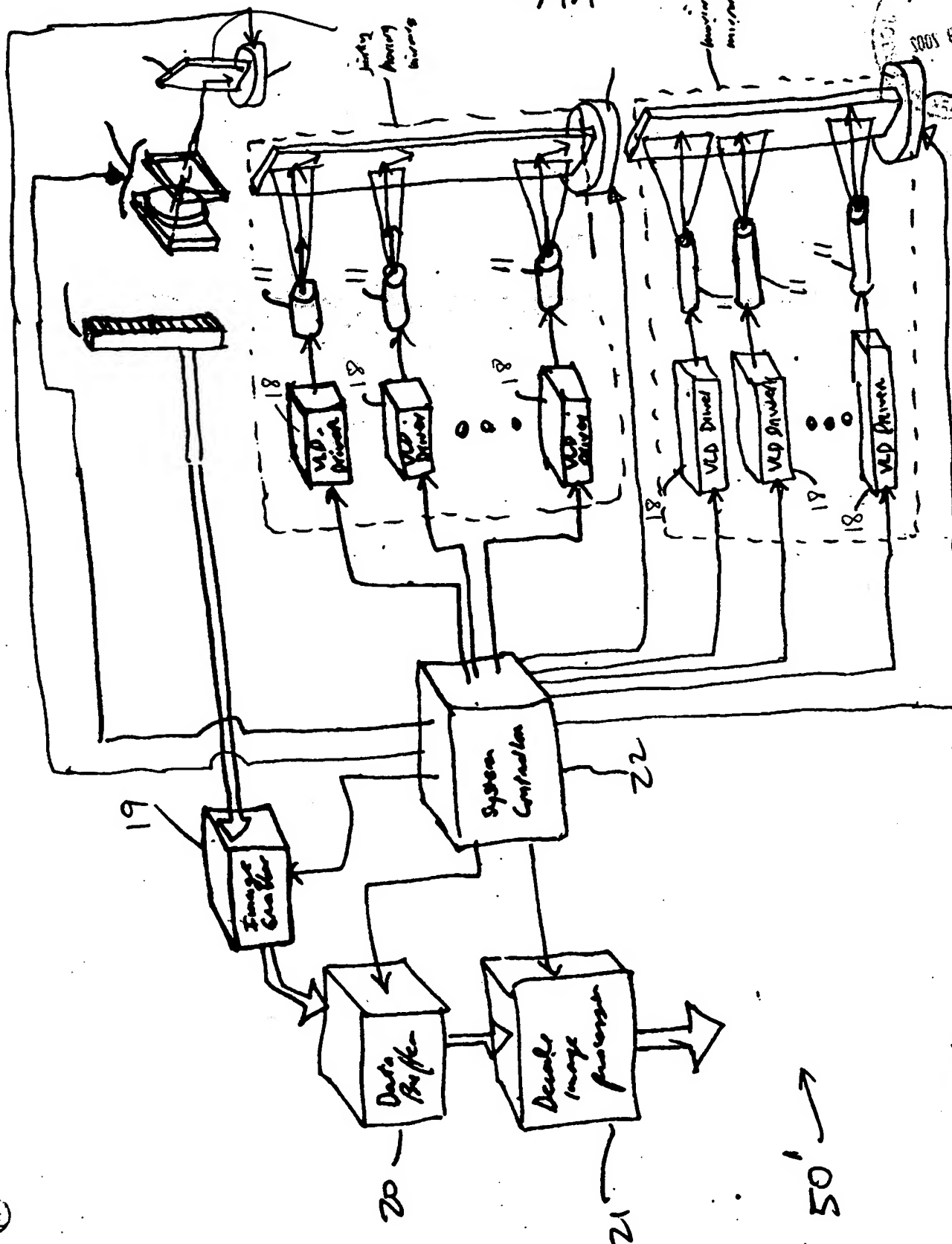


FIG. 3J1

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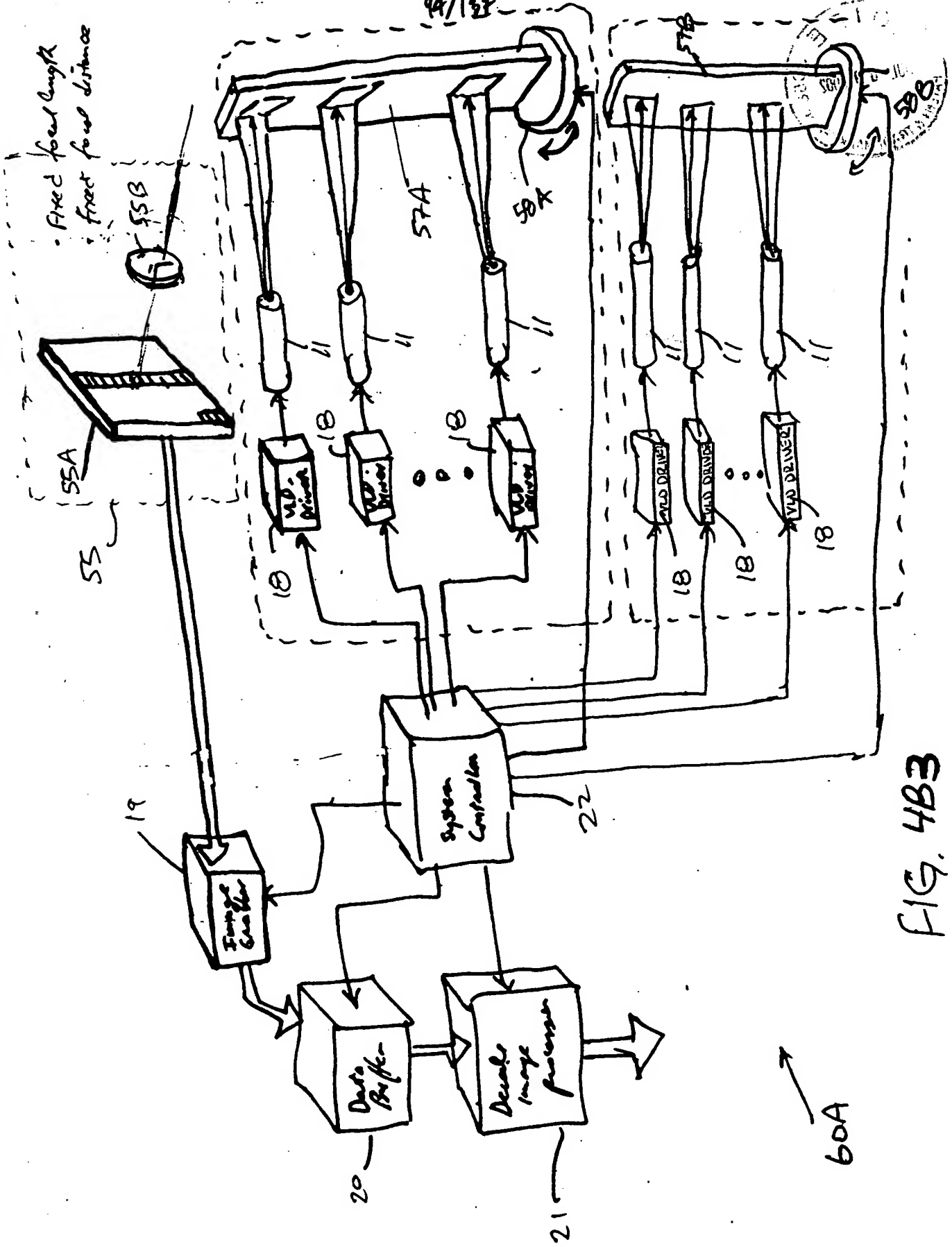


FIG. 4B3

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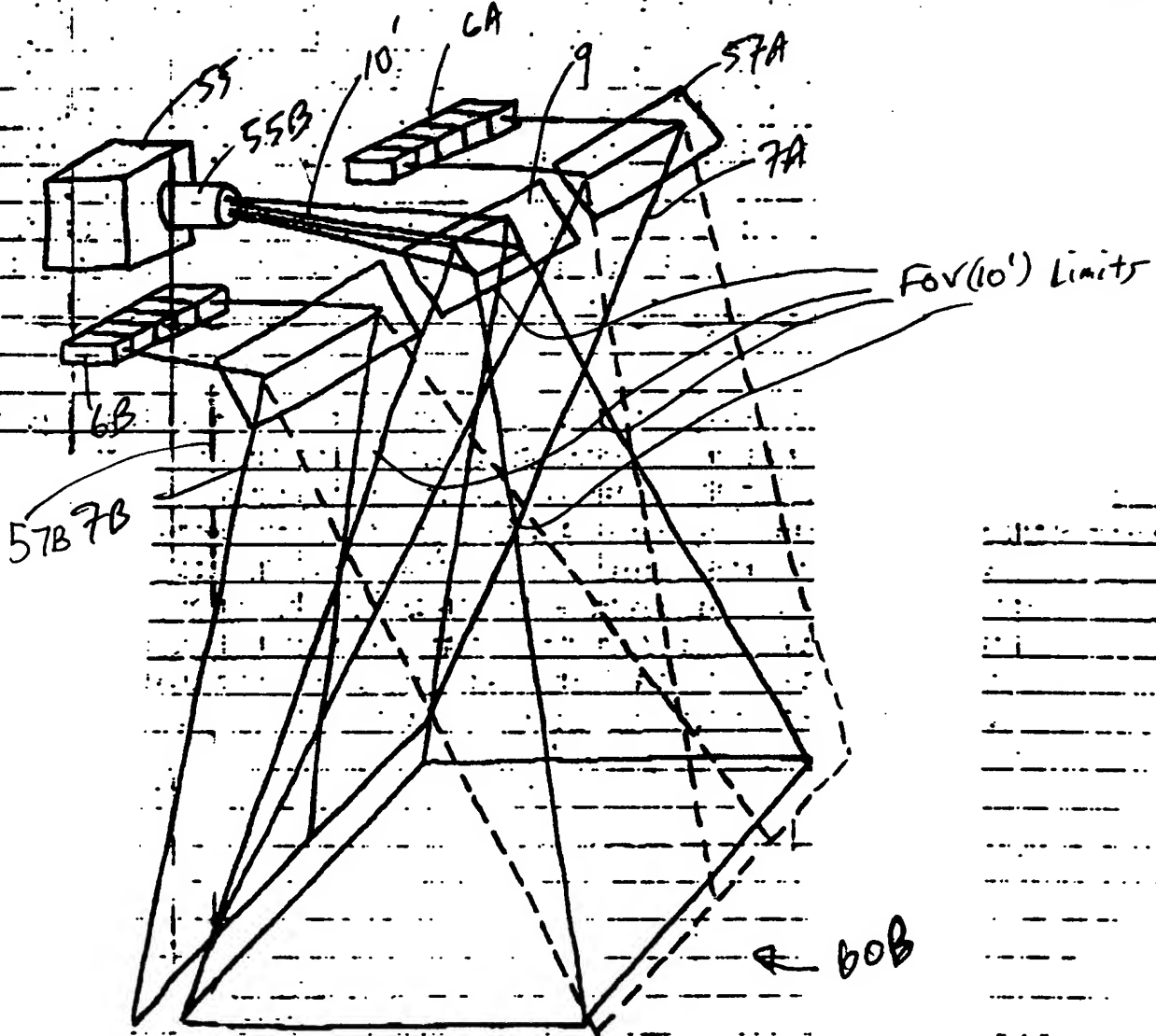
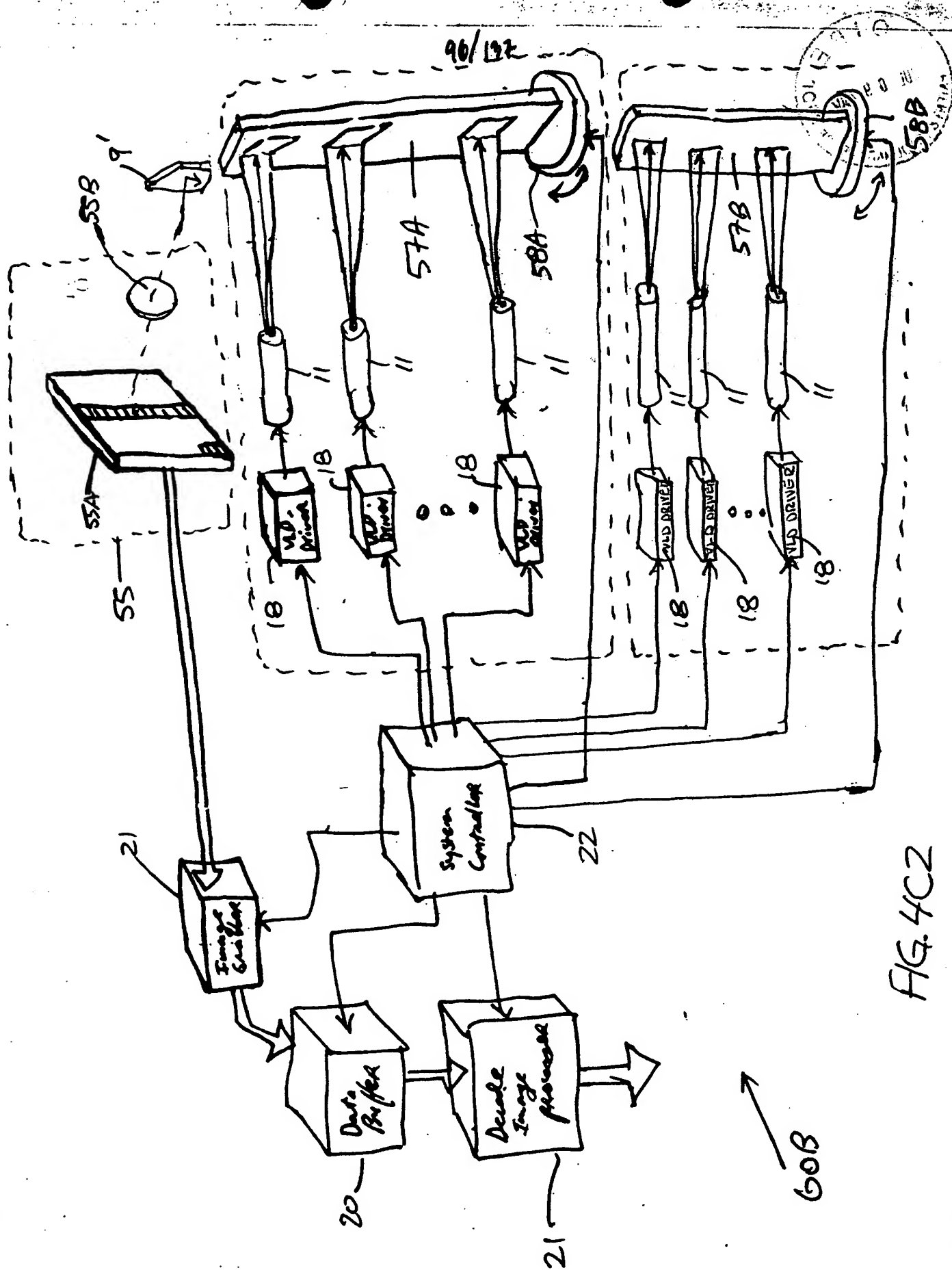
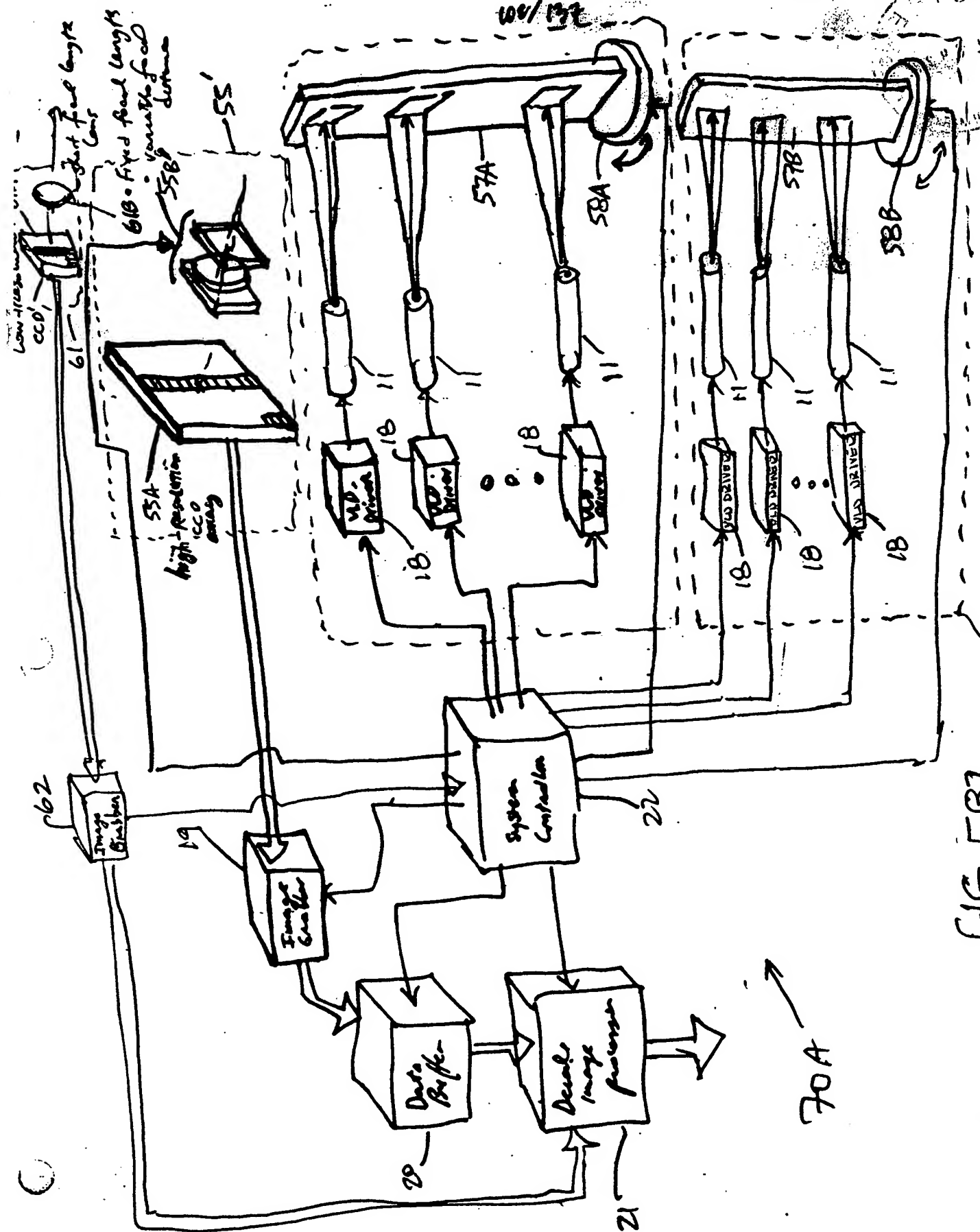
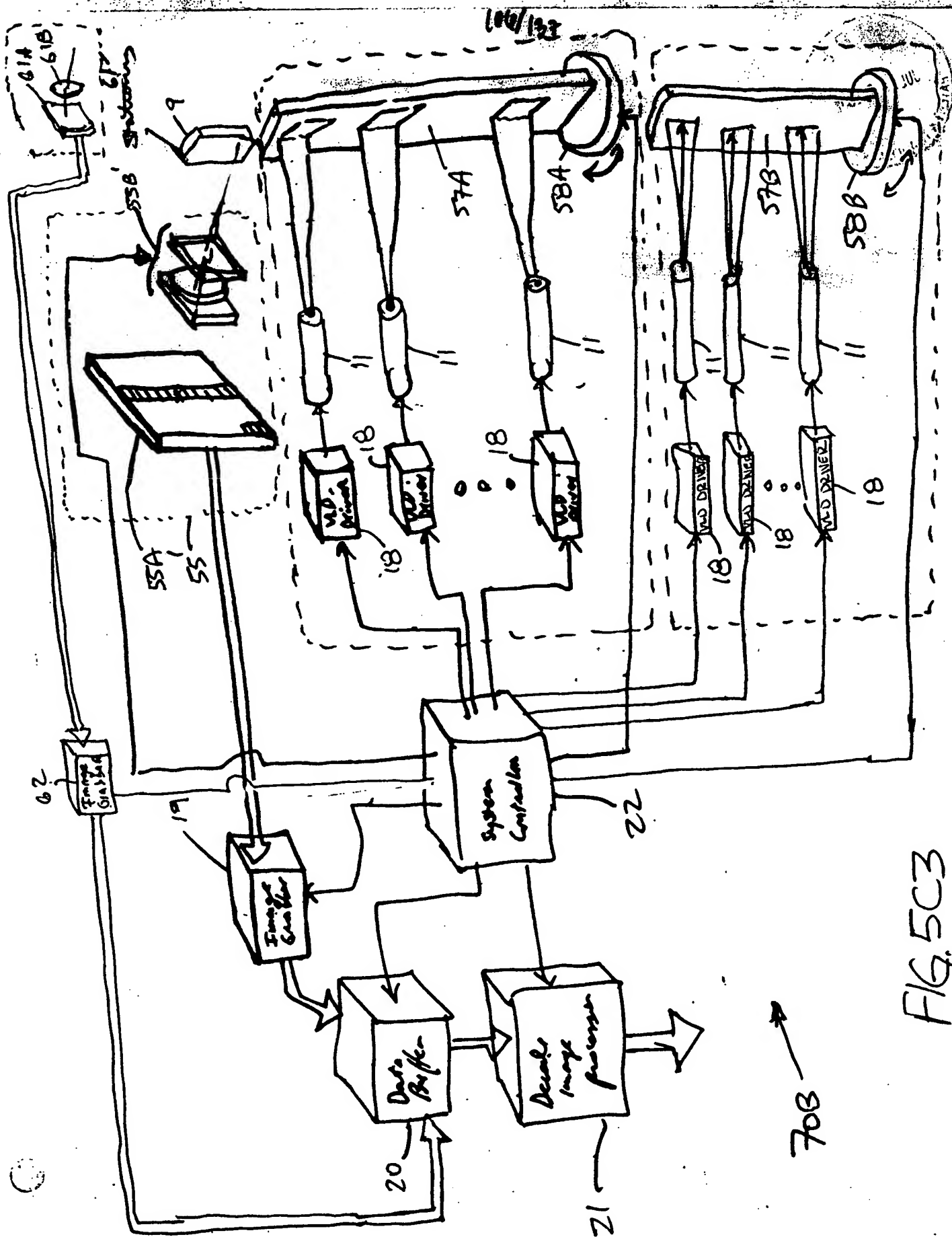


FIG. 4C1







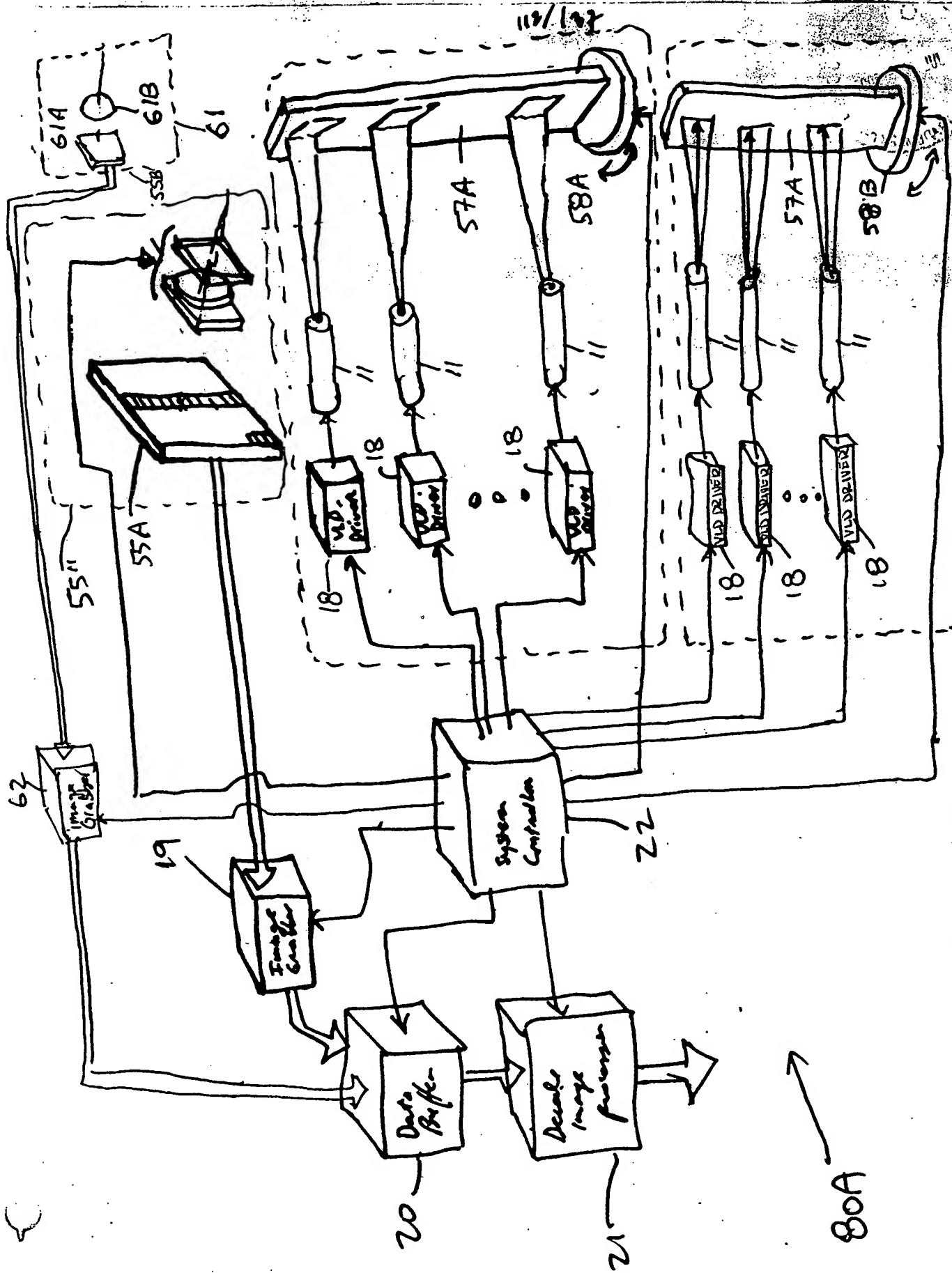


FIG. 6B3

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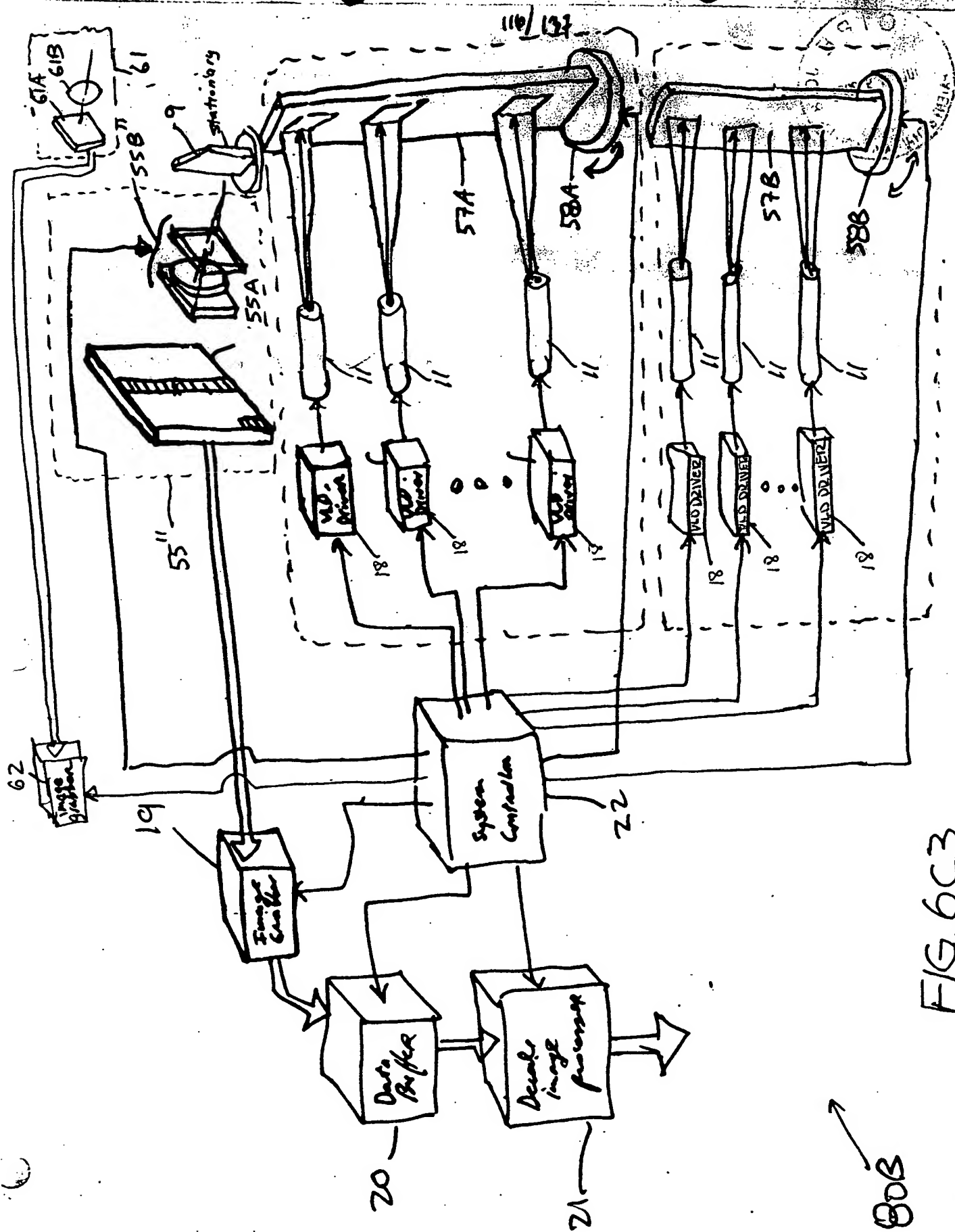


FIG. 6C3

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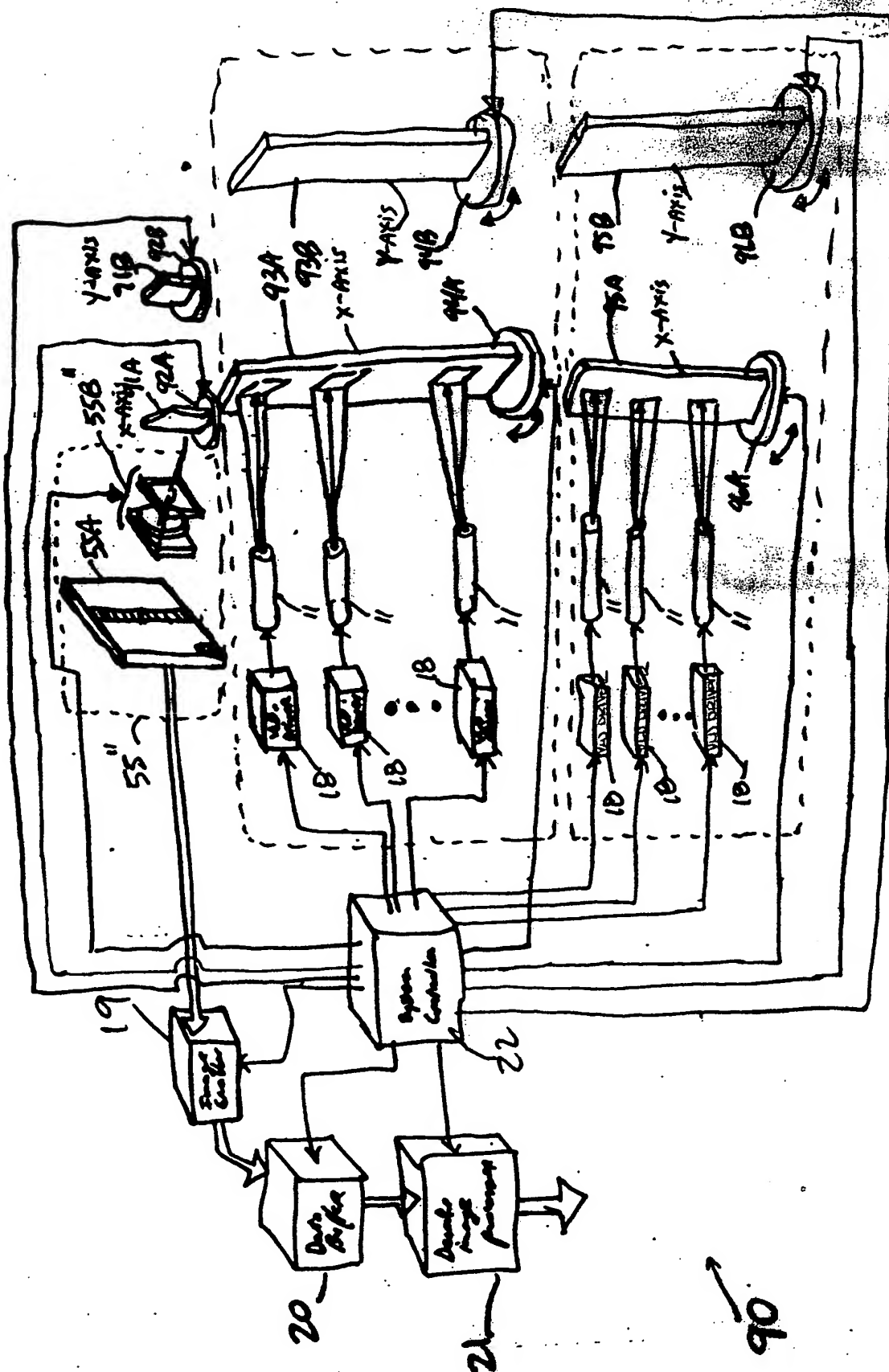


FIG. 6B